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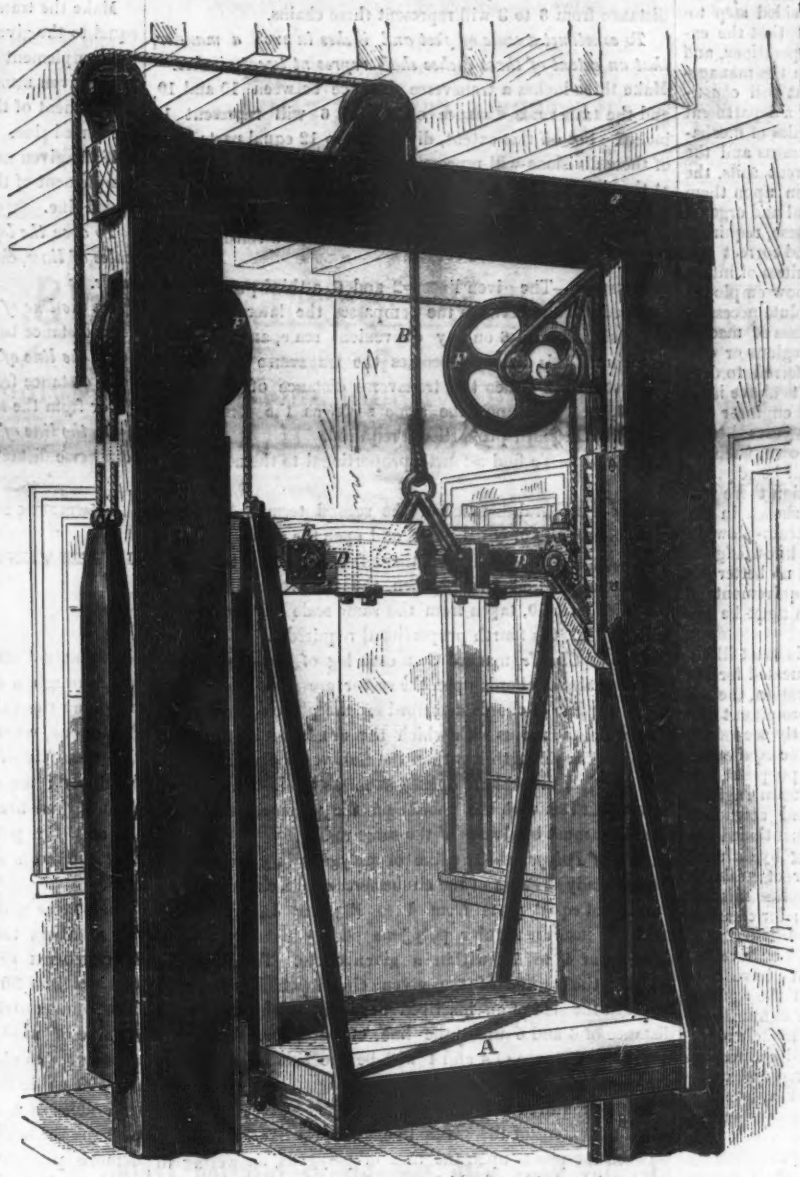
SAFETY HOISTING APPARATUS.

The use of cams and levers and of springs and levers for preventing the fall of the cage of a hoist, on the breaking of the hoisting rope, is not new; but, unfortunately, neither cams nor springs are wholly reliable; the latter, especially, are unreliable transmitters of power, losing elasticity when kept long compressed, and breaking when subjected to sudden strain. The object of the improvement, of which the accompanying engraving is an illustration, is to provide a certain means for preventing the fall of the cage in consequence of accident to the hoisting rope or chain. In this device the operation of the arresting levers is assured, as they are engaged with the rack instantly, in case of the breakage of the hoisting rope, by means of a counterbalance or weight, which, when the cage or platform is ascending, is moving in a contrary direction, thus giving the additional advantage of reducing the weight of the cage. Whenever the hoisting rope or chain ceases to act, the counterbalance rope comes into action and prevents disaster. In the engraving, A, is the hoisting cage or platform, B, the lifting chain, attached by means of links, C, to the bell crank levers, D, having their fulcrums at E, and provided at the outer ends with teeth cut to fit the racks in the uprights of the framing. The ropes suspending the counterbalance weights are attached to the levers, D, at points outside their fulcrums, and pass over grooved pulleys, F. The operation of the machine and its arrangements is apparent from an examination of the illustration. So long as the hoisting rope is held "taut," the levers, to which it is attached, are drawn away from the racks, and the machine operates freely; but the instant the hoisting rope breaks, or is slackened suddenly from any cause, the weight of the cage and its load comes upon the counterbalance ropes, the levers instantly engage with the racks, and the descent of the cage is prevented. There is no possibility of the device getting out of order, and ceasing to operate, except by the breaking of both the levers or one of the ropes; and the former may be made of the toughest wrought iron and the latter may be wire ropes. A large machine is in operation at the works of MERRICK & SONS, Philadelphia, Pa., and a working model may be seen at their office, 62 Broadway, New York City. Further information may be obtained by addressing the patentees, at either place.



IMPROVEMENT IN SAFETY HOISTING APPARATUS.

The Salt Mines of Cracow.

Poland, as everybody knows, was formerly an independent sovereignty, existing from an early date. At present its ancient territory is divided between Russia, Prussia and Austria. The city of Cracow, once the residence of its kings, now belongs to the latter power, though the products of the celebrated salt mines of the region are shared with the two others, in certain proportions stipulated by the treaty of partition. These salt mines, the most renowned in the world, are situated about eight miles from the city of Cracow, having their mouth or principal entrance in the pleasant village of Wieliczka, which lies on the slope of a wooded ball, and is very picturesque. The superintendents of the mines reside here, and their dwellings, together with the government offices and large storehouses for salt, occupy a pretty eminence, and are conspicuous from a distance. A great many people from various countries visit these remarkable excavations, and are rewarded for their trouble. Every year for many centuries having added to their depth and extent, these mines are now of immense and almost inconceivable magnitude. In order to visit them the traveler must procure a permit from the government, which is easily done, the proper officer being on the spot. The opening or square shaft, through which the descent is made, is covered by a building or office: and here the visitor is dressed in a long, coarse linen blouse, to protect his clothing while under ground. A door is opened, and he goes down by stairs, preceded by boys who carry lamps only to make the darkness more visible. Or, if he is so disposed, he can descend by the windlass and ropes suspended in the centre of the shaft. More frequently visitors descend by the stairways and come up by the ropes. No salt is seen for a depth of more than two hundred feet; then the veins begin to appear in a bed of clay and limestone. Fifty feet further down the stairs terminate, and the salt is everywhere; nothing but salt; overhead, under foot, on every side are dark gray masses of solid salt, whose points and surfaces sparkle in the lamp light. Galleries now branch off in all directions. Lights twinkle and groups of laborers are seen hacking the floors or removing in wheelbarrows blocks that have already been cut out. Onward and downward goes the visitor, through halls, chambers, tunnels innumerable. Stairs descend lower and lower, and similar apartments reappear, till he loses all sense of distance or direction; blindly following his conductors, who point out from time to time, localities or objects of peculiar interest, where all is surpassing wonderful. Everything is solid salt, except where some insecure roof is supported by huge timbers, or a wooden bridge is thrown over some vast chasm from which thousands of tons of salt have been quarried and removed. The air grows dryer and purer the deeper you go; the points and faces of the rock more crystaline and brilliant. One enormous hall, out of which has been cut a million hundred weight of salt, has the appearance of a theatre. It is over one hundred feet high, and the blocks, taken out in regular layers, represent the seats for the spectators. Passing on through one of these galleries a chapel is reached, which is only the first and oldest of many apartments thus designated, differing only in size and decoration. It is called the Chapel of St. Anthony, and is supported by columns of salt left in quarrying the solid rock. It has an altar, crucifix, statues of saints large as life, all of pure salt. The air in this part of the mines, near the surface, is much more moist than that of the deeper excavations, so that the process of dissolving goes on slowly, and in consequence some of these statues of salt are gradually losing their shape. The head of one is nearly gone, the limbs of another, while deep furrows are observable in many places on their bodies, making them present a very grotesque appearance when lighted up for exhibition. The smoke of the torches and lamps, added to the dampness of the air, blackens the surface of all objects not recently cut, so that these statues might be mistaken for black marble. In another spacious vault stand two obelisks of salt, which commemorate the visit of the Emperor Francis I., and his Empress. Further on you come to a lake more than twenty feet deep, intensely salt, of course, which is crossed in a heavy square boat. In this you are paddled through a tunnel which connects two immense halls. While in the middle of the tunnel the walls behind you and before you are brilliantly lighted up, and a gun is discharged which, with its echoes and reverberations, almost deafens you. Both air and water tremble visibly under the strange and frightful concussion, and you are only too thankful to reach the end of your voyage and stand once more on solid salt. Francis Joseph's ball-room is another of the wonders of this subterranean world. It is an immense apartment, both in height and extent, and on some festive occasions is used for dancing. It is lighted by six large chandeliers, which resemble cut glass, but are in reality of crystalline rock salt. Statues of Vulcan and Neptune, sculptured from salt, also adorn this hall, which, when well illuminated, exhibits a marvellous splendor, the light being reflected from innumerable brilliant points and angles of the glittering rock. Down, down, down, hundreds of feet further, through labyrinths of shafts, galleries, and chambers, crooked passages, vaulted archways and openings which have no name and seemingly no end. Groups of miners, naked to the hips, are everywhere busy with the implements of their darksome labors; pick, mallet and wedge are employed incessantly in blocking out and separating the solid mass. Their manner of work is the same simple process in use centuries ago, perhaps by the remotest ancestors of these very men, in these very mines, for they are immensely old. The blocks are marked out on the surface of the rock by grooves, one side of them deepened to the required thickness, and wedges being inserted under the block, it is soon split off. It is then divided into pieces of 100 pounds each, and in this shape is ready for sale. It is removed in carts or barrows to the shaft, where it is hoisted up, stage after stage, to the surface. Horses and mules are employed, and it is said some of these animals are born and raised in the mines. The number of laborers constantly at work is from one to two thousand. They all live outside the excavations at the present day, although traditions exist of times when the families of some of the miners had their abodes in these fearful depths; and where children were born and reared to the occupation of their parents, seldom or never visiting the outside world. The thing is neither impossible or incredible, as the air in the lowest part of the mines is considered more salubrious than in the upper regions. But the practice was long ago discontinued, if it ever existed to any extent. The miners, who are fine, muscular, and healthy looking men, are divided into gangs for work, and relieve each other every six hours. A gang will quarry in that time

about one thousand hundred weight. The temperature is very even all the year round, and the preservative power of the air is such that wood never decays, but retains its qualities for centuries. People with pulmonary affections are said to have been much benefited by inhaling freely the atmosphere of the mines. When and how this wonderful deposit of salt was originally discovered is unknown. It was worked in the twelfth century, and how much earlier none can tell. Some traditions are held by the ignorant and superstitious peasants of the country, which ascribe the discovery to a miraculous or supernatural agency. Others say that a certain Queen of Poland, on visiting the spot, commanded her subjects to dig there, assuring them that there was a most precious treasure beneath them. After a while a crystal of salt was found, which, as an earnest of the abundance afterwards discovered, this princess had set in a ring as a royal gem, and wore to the day of her death. The extent of the deposit has not yet been fully ascertained. It commences, as we have before stated, about 200 feet below the surface, and has a solid depth of nearly 700 feet, and rests on a bed of compact limestone, such as forms the peaks of the Carpathian Mountains, which it seems to follow. It has already been explored to the continuous length of two miles and a half, and it is estimated that the aggregate length of all the innumerable excavations of these mines amounts to more than 400 miles!

Agricultural Engineering.

We notice in our foreign exchanges that a college in Scotland has recently decided to grant the titles of Bachelor and Master of Agriculture to those who shall pass a thorough examination in certain prescribed and appropriete branches of study, thereby raising agriculture to a recognized place among other industrial sciences, and giving to its educated practitioners the same prestige that belongs to similar practical professions. This may be considered a decided step toward a full recognition of the important truth that the extended introduction of machinery into farm operations, and the application of the principles of chemistry in the management and tillage of the soil, are producing what will constitute in reality a new department of engineering, a department including within its boundaries all those principles of mechanics embraced in the constructiou of farm apparatus and the structure of farm buildings, the nature of different soils, the requirements of different plants, and the reaction upon them and the ground upon which they grow of mineral and organic manurial agents, and, not less than in any of these, requiring in its successful practitioner a full knowledge and correct appreciation of the possibilities and also the difficulties of introducing new motive forces in the place of those now employed in the operations of agriculture, and of the absolute necessity which often exists of materially modifying a class of machinery to suit the peculiar wants of different regions or districts. The conferring of the degrees above referred to does nôt, it is true, infer excellence in all of the points above indicated; but when the duties of the agricultural engineer become fully understood, as they may be twenty years hence, and his sphere becomes more exclusively his own, such, or even a more varied and extended, knowledge will be required at his hands, and if he properly fulfills his mission there will be fewer instances of such mistakes as those shown in the numberless attempts to produce a profitable steam-plow, in which agriculturists failed from their lack of knowledge of the mechanical art, and the engineers succeeded no better because they knew little or nothing of the true requirements of the case, or of the trials to which the apparatus must be necessarily subjected in practice.

Among the problems, the solution of which is most likely to be obtained at the hands of men specially educated for the prospective business or profession under consideration, the adaption of steam to purposes of tillage holds a prominent but by no means all-important piace; as but slightly secondary to this is the application of the steam, air, or some equivalent engine as a stationary motor for agricultural purposes, for, notwithstanding the multiplicity of portable steam engines, there are as yet few or none which an unskilled attendant should feel safe in using. There might also be mentioned the production of compound machines for preparing by different changes of parts the food for animals, whether of grain or stalk or root; for disintegrating and preparing refuse mineral and vegetable substances for fertilizing purposes; for cleaning fields from stones; for the rapid and efficient construction of drains, and for many other purposes which would be developed in time, but can hardly now be foreseen. We have thus briefly and hastily indicated the sphere in which the agricultural engineer of the future will labor, when the unnumbered fag-ends of practical science that now help to make up the sum total of agricultural knowledge shall be fused and welded into a symmetrical whole, just as from the scattered and varying truths with which the mill-wright worked a hundred years ago has been formed the "mechanical engineering" of the present time. Although it may and probably will be a score of years before such a result will be even approximately reached, and even longer than this before men shall devote themselves wholly to this profession, there can be but little doubt that the time will sooner or later come when the practice of agriculture will require and secure the systematized employment of the highest grade of engineering skill.—*American Artisan.*

The Use of Carbonic Oxyd in Furnaces.

It has often been proposed to use, in some way or other, carbonic oxyd as a heating material in furnaces. It forms a large proportion of the gases produced in Sieman's regenerative furnaces, and of the "heating gas" which it was proposed to distribute about Birmingham some years ago. A German metallurgist now suggests its use in blast-furnaces, along with air to diminish the nitrogen while increasing the heat. He proposes to make it by, in the first place, calcining chalk with some cheap combustibles in retorts, and passing the carbonic acid thus let at liberty into another retort filled with coke, kept at a red heat. The carbonic oxyd so obtained is superheated and carried on to the air-blast. The production of the carbonic oxyd in this way would seem expensive, but the writer says the lime made in the first retorts will nearly cover the cost.

Practical Letters.

[WRITTEN FOR THE AMERICAN JOURNAL OF MINING.]

LESSONS ON MECHANICAL DRAWING—No. XIX.

BY T. P. PEMBERTON.

EXPLANATION OF THE SECTOR.—(*Continued.*)

The line of lines, marked L on each leg of the sector.—This is a line of 10 primaries, each subdivided into tenths, thus making 100 divisions. Its use is, to divide a given line into any number of equal parts; to give accurate scale measures for the construction of a drawing; to form any required scale; to divide a given line in any assigned proportion; and to find third, fourth, and middle proportionals to given right lines.

To divide a given line into eight equal parts.—Take the line in the compasses, and open the sector so as to apply it transversely to 8 and 8, then the transverse from 1 to 1 will be the eighth part of the line.

To form any required scale of equal parts.—Take one inch in the compasses, and open the sector, till this extent becomes a transverse distance at the division indicating the number of parts in an inch of the required scale.

Example.—To adjust the sector as a scale of one inch to four chains.—Make one inch the transverse distance of 4 and 4; then the transverse distances of the other corresponding divisions and subdivisions will represent the number of chains and links indicated by these divisions: thus, the transverse distance from 3 to 3 will represent three chains.

To construct a scale of feet and inches in such a manner, that an extent of three inches shall represent twenty inches.—Make three inches a transverse distance between 10 and 10, and the transverse distance of 6 and 6 will represent 12 inches. Set off this extent, divide it into 12 equal parts, each of these divisions will represent an inch. Place the figure 0 at the right, and set off again the extent of the whole twelve parts, from 0 to 1, 1 to 2, etc., to represent the feet.

Proportion.—Two lines being given, to find a third proportional.

Example.—The given lines=2 and 6, a third proportional required. Take between the compasses the lateral distance of the second term 6 on any convenient scale, and open the sector until this distance becomes the transverse distance to the first term 2; then the transverse distance of the second term 6, measured upon the same scale as the former, will equal 18, the third proportional required.

Example.—To find a fourth proportional to the numbers 2, 6, and 10.

Take the lateral distance of the second term 6, from any convenient scale of equal parts, and open the sector until that quantity, or any aliquot part thereof, becomes the transverse distance of the first term 2, then the transverse distance of the third term 10, taken from the same scale of equal parts, will give 30, the fourth proportional required.

Line of Chords, marked C on each leg of the sector. The double scales of chords upon the sector are more useful than the single line of chords described on the plane scale; for on the sector, the radius with which the arc is to be described may be of any length less than the transverse distance of 60 and 60 when the legs are opened as far as the instrument will admit of. But with the chords on the plane scale, the arc described must be always of the same radius.

Line of Polygons.—The line of polygons is chiefly useful for the ready division of the circumference of a circle into any number of equal parts from 4 to 12; that is, as a ready means to inscribe regular polygons of any given number of sides, from 4 to 12, within a given circle. To do which set off the radius of the given circle (which is always equal to the side of an inscribed hexagon) as the transverse distance of 6 and 6 upon the line of polygons. Then the transverse distance of 4 and 4 will be the side of a square, the transverse 5 and 5 the side of a pentagon.

If it be required to form a polygon, upon a given right line set off the extent of the given line, as a transverse distance between the points upon the line of polygons, answering to the number of sides of which the polygon is to consist, as for a pentagon between 5 and 5, or for an octagon between 8 and 8; then the transverse distance between 6 and 6 will be the radius of a circle, whose circumference would be divided by the given line into the number of sides required.

All regular polygons, whose number of sides will exactly divide 360 (the number of degrees into which all circles are supposed to be divided) without a remainder, may likewise be set off upon the circumference of a circle by the line of chords. Thus, take the radius of the circle between the compasses, and open the sector till that extent becomes the transverse distance between 60 and 60 upon the line of chords; then having divided 360 by the required number of sides, the transverse distance between the numbers of the quotient will be the side of the polygon required. Thus, for an octagon, take the distance between 45 and 45; and for a polygon of 36 sides, take the distance between 10 and 10, etc.

Lines of sines, tangents and secants.—Given, the radius of a circle, required the sine and tangent of 28° 30′ *to that radius—*

Open the sector, so that the transverse distance of 90 and 90 on the sines, or of 45 and 45 on the tangents, may be equal to the given radius; then will the transverse distance of 28° 30′, taken from the sines, be the length of that sine to the given radius; or if taken from the tangents, will be the length of that tangent to the given radius.

But if the secant of 28° 30′ *was required—*

Make the given radius a transverse distance of 0 and 0, at the beginning of the line of secants, and then take the transverse distance of the degrees wanted, viz., 28° 30′.

A tangent greater than 45 *degrees* (*suppose* 60) *is found thus:*

Make the given radius a transverse distance to 45, and 45 at the beginning of the scale of upper tangents, and then the required degrees (60) may be taken from the scale.

Given the length of the sine, tangent, or secant of any degrees, to find the length of the radius to that sine, tangent, or secant.

Make the given length a transverse distance to its given degrees on its respective scale. Then

If a sine, the transverse distance of 90 and 90 on the sines will be the radius sought.

If a tangent under 45°, the transverse distance of 45 and 45 on the tangents will be the radius sought.

If a tangent above 45°, the transverse distance of 45 and 45 on the upper tangents will be the radius sought.

If a secant, the transverse distance of 0 and 0 on the secants will be the radius sought.

To find the length of a versed sine to a given number of degrees, and a given radius.

Make the transverse distance of 90 and 90 on the sine equal to the given radius. Take the transverse distance of the complement of the sine of the given number of degrees. If the given number of degrees is less than 90, subtract the complement of the sine from the radius, the remainder will be the versed sine.

If the given number of degrees are more than 90, add the complement of the sine to the radius, and the sum will be the versed sine.

To open the legs of a sector, so that the corresponding double scales of lines, chords, sines, tangents, may make each a right angle.

On the line of lines, make the lateral distance 10, a transverse distance between 8 on one leg and 6 on the other leg.

On the line of sines, make the lateral distance 90, a transverse distance from 45 to 45, or from 40 to 50, or from 30 to 60, or from the sine of any degrees to their complement.

On the line of tangents, make the lateral distance of 45 a transverse distance between 30 and 30.

[WRITTEN FOR THE AMERICAN JOURNAL OF MINING.]

ON THE VENTILATION OF COAL MINES—NO. XVII

BY J. W. HARDEN, M. E.

The actual amount of air which it is necessary to circulate through a mine in order to have good ventilation, depends on the thickness and lay of the steam; and if it is a rising one, whether it is worked above or below bottom; the quantity of coal worked, and the number of miners employed; the extent of the workings and goaves; the quantity of fire damp or other deleterious gases given off, and the possibility of sudden eruptions; and whether the roads are "gob-roads," or roads cut in the solid coal.

In a mine which does not produce fire damp—and there are numbers that do not, in any appreciable quantity.—MACKWORTH says there should be a velocity of current not less than 30 feet per minute, or half a foot per second. This, your contributor says, will correspond in practice "in a mine of moderate extent, and with an average size of air courses to about 100 cubic feet per minute per man, and say 500 cubic feet per minute per horse." Measuring the superficies of his exterior and the capacity of his lungs perhaps the horse is five times larger than the man. Yet it is more probable that the 100 feet per minute per man was intended by his authority to supply the horse also, for we find J. HUTCHINSON M. D., a scientist and writer on this subject, saying that, for men, horses, and lights, there should not be less than 17 cubic feet per minute per man for vital chemical purposes alone. In allowing, as he does one fifth of a horse per man as the number of horses required in the mine at the same time, he rather over-horses it, and of lights he allows one and a fifth per man burning at the same time, so that in circulating 100 cubic feet of air per minute per man, there will be for the dilution of the otherwise vitiated air-fire-damp not being present—that is for sanitary purposes, apart from the vital, 86 cubic feet per minute per man.

W. P. STRUVE calculated that in his district, Wales, it took 80 men and boys on the average to get 100 tons of coals per day, to each of whom, including horses and lights, he allows 300 cubic feet of air per minute in a fiery mine, 150 feet per minute in a moderately fiery one, and 100 feet per minute in a non-fiery one; being 24,000 cubic feet of air per minute for a fiery mine, 12,000 feet for a

moderately fiery, and 8,000 feet for a non-fiery, per minute, per 100 tons of coal raised. MACKWORTH says, "where there is any fire-damp, there should never be less than 200 cubic feet of air per minute per man, and where there is a tendency to fire-damp in a working face, the current ought to be traveling at the rate of three feet per second. There should be from 200 to 600 cubic feet per minute per man, or even more than that wherever a mine is subject to occasional outbursts of gas." These are large figures. 60,000 cubic feet of air per minute will ventilate a moderately fiery colliery, working 130,000 tons a year, so that naked lights may be used, and there are many such cases in practice.

Turning to the merits of the motive powers treated on, the examples adduced will probably be of value in assisting to a decision, some who in the every-day working of their mines have found something more than natural ventilation required, but yet continue as best they can with such means as temporarily present themselves, laboring from day to day under both inconvenience, loss, and perhaps danger.

A large number of mines, both in this country and in Europe, are at this day being worked with no other than natural ventilation; yet it is only under the most favorable circumstances, that is to say, in the winter months (when the difference in the weight of the downcast and upcast columns is much greater than in the summer) and where the air courses are large and well laid out, and the course of the air directly ascending, that the quantity of air would be adequate in the working of a mine, even where no fire-damp ever showed itself.

Your contributor tells us that amongst mechanical ventilators, the air pumps are capable of moving the largest volumes of air, and that the greatest inconvenience is in the movement of so great a quantity of valves. That they are capable of circulating air under a heavier drag than any other power, is generally admitted; and in such a case as that of the Middle Duffeyen Colliery, there is no doubt but it was the best power that could under the circumstances be applied; but its first cost, and the limited amount of air it is capable of moving, owing to the slow speed at which so large a machine must of necessity be driven, to work it in safety, will militate very much against its use under ordinary circumstances. Again, there is the stopping and starting of every stroke, which makes the action very unsteady for some distance from the machine. In the returns at the Westminster Colliery, the miners said they could count the strokes of the engines driving it.

Mr. COMBS, the Government Engineer of France, tried two pumps, one at Sacre-Madam and the other at Monceau-Fontaine, and he found the ratio of useful effect to that of power applied, as one to four in the former, and one to five in the latter. He says: "The loss was not to be attributed to a bad construction of machine; having to stop and start the air at each stroke of the machine, necessarily absorbs a great deal of the motive power."

Of the result of NIXON's application of the principle, not much at present has come to hand; yet, as the air circulated by such means, can only be of the volume of the capacity of the vessel lifting it, or receiving it as it is lifted, and the speed at which the machine travels; it follows, that, with such inability for rapid motion, unless the machine is very large, the quantity of air circulated will be but limited. As before noticed, Dr. ARNOTT had an idea that he could by such means lift any amount of air from a coal pit, and so no doubt he could, by multiplying the number and capacity of his pumps.

New Process of Manufacturing Steel.

The London *Times's* city article, October 21, contains the following: "A few years since Mr. Bessemer carried to a successful issue the pneumatic process which bears his name, for the manufacture of steel from pig iron. The Bessemer process, however, demands iron of the first brand, and is unequal to the conversion of iron of inferior quality, charged with impurities of phosphorous and sulphur in large quantities. In short, until very recently, no marketable steel has been produced from Cleveland or Northamptonshire pig. Great interest therefore, is stated to attach to the successful operation of a process patented by Mr. Heaton, of the Langley Mill, in the Erewash Valley, by which inferior iron is made into first-class steel, thus utilizing for the higher purposes of manufacture, vast deposits of ore hitherto condemned to the lowest rank. The process is chemical, and not mechanical, and a great economy of time and labor appears thus to be secured. Nitrate of soda is the agent employed, and the personal investigation of Professor Miller, of King's College, Vice-President of the Royal Society, and Mr. Robert Mallet, F.R.S., together with the results of experiments by Mr. David Kirkaldy as to the tensile and resisting strength of the steel manufactured by the method, apppears to be conclusive as to its efficiency, placing the steel upon an equality with the Low Moor and Bowling. The saving in cost of production is said to be several pounds a ton."

☞ Near Green River City, on the Central Pacific Railroad, a pile of quarried stone recently ignited spontaneously, and at last accounts was still burning. It is apparently sandstone, saturated with pertoleum.

Mining Summary.

GOLD AND SILVER.

Nevada.

White Pine.—In order to meet the demands of the public for news from this wonderful locality, we present this week a lengthy summary, compiled from the latest Nevada papers received. The Territorial *Enterprise*, the leading paper of the State, says: "We have for some weeks, as much as possible, refrained from giving anything more than a passing notice of the White Pine excitement, but it has all the time been growing and increasing in might, until at last it has gained such strength and assumed such importance that we cannot well ignore it. The smouldering volcano must soon burst—if not this winter, surely next spring. There is no getting around it, the White Pine mines are rich—wonderfully rich. All the letters received from there and all the men who come in from there tell the same story. Parties who have examined the mines say that they are doubtless the richest ever discovered in any part of the world. Mr. William Woodburn of this city, who spent some days in the mines, says that he believes there is enough silver in the one small range of mountains in which the White Pine mines are situated, to pay off the National debt—large as it is. His account of the nature of the silver deposit agrees with that of all others who have visited the mines, namely—that it appears to be a vast stratum of limestone, as wherever shafts have been sunk through this limestone cap, the rich ore has been found. The depth of the deposit is not known, no shaft having yet cut through it. The Eberhardt Company, the oldest in the district, have drifted in one direction a distance of 180 feet, with cross drifts 60 to 70 feet in length, and have sunk a shaft 35 feet in depth, and all in a solid mass of ore worth from $200 to—don't pooh! pooh!—$20,000 per ton. On Chloride Flat—somewhere on the same mountain—the same kind of ore has been found by every shaft that passed through the limestone. All the miners who have 'struck lie,' have piled about their shafts large heaps of ore, ranging in value from $200 per ton, up to the frightful figures we have ventured to mention above. We might make out a long list of the lucky ones, but as it might create an inconvenient excitement among their poor relations, we refrain. It is enough to say that men who were about our streets four months since without a cent, are now worth so much silver that neither they nor any of their friends can calculate its value—because, you see, they don't know the length, breadth, nor thickness of their pile. All from this vicinity say that White Pine is the poor man's paradise. Mr. Woodburn is of the opinion there will be in the mines by the 1st of next April a population of 20,000 persons. All the stories of the severity of the winters there does not prevent people from rushing thither—they are going every day. No one now asks, 'Are you going to White Pine?' The question is, 'When do you go?' As an offset to all the above, it is but fair for us to add that there are many persons who believe the mines too good to last, and who believe that the ore deposit is of no great thickness."..... The Reese River *Reveille* has a lively account of Chloride Flat. It says: "Last night we heard a person from the District of White Pine give a vivid description of the appearance of Chloride Flat, where numerous small parties of prospectors and miners were busily engaged from morning till night. According to his account the daily scene was a marvel in the history of mining operations on this coast or elsewhere within the United States. The Flat appears to be covered by an incrustation or 'cap' of limestone of varying thickness and remarkably tough and hard. Countless claims have been located upon this flat. The locations are made as upon veins, and they ramify and bisect each other at every conceivable angle. The inevitable confusion and entanglement are apparent to every one, but as yet there has been almost no trouble, and the various claimants dig and scratch and tumble about as happily as a family of gophers. The excavations of the miners, which are of every form and of different dimensions, are necessarily close together; in some instances they are only a few yards apart. These openings varied in depth from a few feet to twenty, thirty, and forty. In every instance, said the narrator, pockets or haunches of good ore have been struck in these excavations; and in several cases the ore is equal to that produced by the most famous claim in the district. Some claims, as the Stonewall for instance, have large piles of valuable ore upon their dumps. The work in these multifarious mines is carried on with unexampled vigor, and the limestone crown, which covers the rich deposit of silver, is buffeted lustily by stalwart arms. The scene is lively and exciting to a newcomer. 'Why,' said the talker from White Pine, whose listeners showed unusual interest in his account, as 'many as forty shots may be heard in an hour.' Little else is heard during the day but the blows of the sledge and the exploding blasts. In some net-work of claims, where the limestone has been cut only a few feet below the surface, there is danger from the fragments thrown out by the blasts; and when the fuse is lighted 'look out!' is shouted sharply, and a score or two of men, who were before hidden, jump out of their holes and run to shelter with amazing vivacity. That was the way at first; but as the men lost too much time running and dodging every time a blast went off, they contrive now to set off their blasts about the same time. It is a wonderful place. In my opinion, Chloride Flat is a vast basin of rich silver ore, into which every poor man may dip his iron spoon and help himself.' We have given the substance, and, in the latter part, the very words of the account. If it is not an exaggeration, the lively spot, where men gather silver ore of the richest quality as gold is gathered from a placer, is well worth the visiting."..... A miner, writing over the signature of "Manhattan," has sent the following "word about White Pine," which he says is the result of many years of practical experience and of several months' observation in that district. The reader will perceive that the writer takes the ground that the ore occurs in deposits instead of veins in Treasure Hill. We give his note for what it may be worth without comment:—"Being an old Austinite, I take the liberty of sending you a few practical observations concerning mining matters in this district. In the first place, I will say that this is a wonderfully rich country, and a man cannot put any limit to the vast body of ore, or say where it begins or where it ends. You find rich ore by sinking a shaft from fifteen to twenty feet deep almost anywhere in the hill. But as far at my judgment goes, nothing like a ledge, properly speaking, has yet been developed, although most all of the locations have been made on supposed ledges. Nearly all our miners are beginning to see that the ore occurs in detached or isolated bodies. Chloride Flat is a striking example in point. There are there at the present time at least one hundred shafts going down; in some they have struck rich ore, and in many others only poor quartz and a conglomerate of limestone are met with. I am quite sure if the whole mountain was prospected as thoroughly as Chloride Flat, the ore would be found to occur in the same manner. There appears to be no rule to guide the prospector, and he is quite as likely to strike it on one spot as another in the hill or flat. Confusion, trouble, and expensive litigation are anticipated in the future on account of the present regulation of the district, which require claimants to make their locations on veins or ledges thus—so many feet running north or south, east or west, or to follow the course of the ledge; which ledge, as they call it, may describe a right angle, a crescent, or a circle. Now, in my judgment, there is a plain remedy for this state of confusion, I would suggest that claims be taken by square locations; say fifty feet square to each locator, who might be allowed to hold for one year by sinking ten or twelve feet deep on his claim. That is my plan; perhaps some one else may be able to offer something better. Fifty feet square of the public domain containing rich ore ought to satisfy any man. Nearly every locator would stand a good chance of finding something worth his while. At the present time no man knows what he does own. The weather is delightful, and you may be sure the boys are taking advantage of it, as the many heaps of rich ore will show."

The [Austin *Reville*, October 30, says:—"A wagon arrived in this city yesterday afternoon from the mill of the Centenary Company, in the District of Newark, with 23 bars of bullion, consigned to W. S. Gage & Co., of this city. The bullion averaged 965 fine, and is the value of $34,836 35. This makes the product of that mill to date during the present month, $35,125 94. We believe the ore from which this fine lot of bullion was produced was chiefly obtained from the mines of White Pine, although some part of it was produced from ore of the mines of the Centenary Company. It is a fine product for less than a month, and speaks well for the superior character of the ore reduced, and the capacity and good management of the Centenary Mill."....The same paper, October 29, says: "Five bars of bullion, of the average fineness of 984, and valued at $6,732 23, were brought into the city yesterday afternoon from the mill of the Monte Cristo Company at White Pine."....And under date of October 24:—"This morning 23 bars of fine bullion, valued at $32,000 were brought to the National Bank in this city from the District of White Pine. They were produced at Page's Mill at Silver Springs, and were obtained from ore of the Eberhardt South."

Silver Peak.—Says the Austin *Reville*, October 28:—"We learned to-day from W. B. C. Harker, Superintendent of the mines of the Silver Peak and Red Mountain Company, whence he arrived this morning, that the mill of the company had been improved and enlarged, and would be opened for work next week. It is believed that every defect in the machinery has been corrected, and that the mill will now reduce the gold quartz perfectly. The gold-bearing mines of the company develop beautifully, and several thousand tons of valuable ore are ready for the mill. Mr. Harker is familiar with the property, and he believes that the bullion produced by the mill of the company in the next three months will produce a sensation."

Battle Mountain—The Humboldt *Register*, October 24, announces that the Battle Mountain mill, owned by Messrs. McBeth, Atchison & Co., is a perfect success. It has by its first run also a success. Ten tons of very inferior ore were first run through the mill in order to get the batteries, pans and machinery in good condition for work, which, when cleaned up gave $500, or at the rate of $50 to the ton. The company is now working 50 tons, which will yield at the rate of $200 to the ton. As there are large quantities of this class of ore in the mine its owners may be excused for boasting of their fabulous wealth."... The same paper understands that, "E. D. Buel, as agent of the English Company, has offered to purchase one-half or the whole of the Golconda mine, at the rate of $60,000 for half, or $120,000 for the whole, and that there is a strong prospect that the sale will be closed." The Winnemucca *Argent*, Oct. 22, however reports as follows, relative to the sale of the Golconda Mine: "This property embraces 2,000 feet. Messrs. Webb & White own one half and the Star City Mining Company of New York the other half. The mill is also owned as is the mine. Mr. T. G. Nugus, Superintendent of the New York Company's interests informs us that Webb & White have offered to give sixty thousand dollars for the other half of the property or take the sum for their half, or segregate interests. Mr. Nugus is confident his company will not sell their interest, but will buy if they desire to invest on speculation, and segregate if *mining* be their only object. Mr. Nugus is a very large stock holder and regards sixty thousand a low price for half the property, as their past developments has proven the mine much larger and richer than was expected." [The latter report has probably the most truth in it.—ED. JOURNAL OF MINING.]

Humboldt.—The contractors are progressing finely in the erection of the new mill for Stewart & Co. The grading is completed, and the frame being put together..... The *Register*, Oct. 24, says: "The owners of the '56 mine, near the Humboldt River, have made arrangements to ship by the Central Pacific Railroad ten tons of ore to San Francisco. This will be the first shipment of ore made by the railroad company; but it is anticipated that a large business will be done in the way of back freights, as it is understood the company will offer great inducements to parties owning low grade or refractory ores which cannot be worked to profit here."..... Captain Comins, from Dun Glen, reports that the last lot of ten tons of Monroe Rock worked $75 per ton. The mine continues to improve every day..... Governor Fall's mine looks better now than it ever did before. The new grade will soon be completed, and the track laid in the new working tunnel, which will enable him to supply the two mills at less cost than is now incurred for hauling and hoisting ore..... Holt's mill, at Gold Run, will be in running order, when he will commence work on ore from the Golconda mine. He has a contract for crushing 100 tons of ore.

Goose Lake.—A private letter from General Crook says: "I think that Goose Lake will be pretty well prospected this summer and fall, as several parties were prospecting in different directions. They tell me that they found quite a quartz district on the Klamath road about the head waters of Sprague River, but they had not prospected it. The Goose Lake country showed off to better advantage this year than it did last. Prospects are favorable for a large emigration into that valley this fall, next spring and summer."

[FROM AN OCCASIONAL CORRESPONDENT.]

Montana.

PROSPECTS OF MONTANA.

Montana, the youngest foster-child of the government, may, from the present year, date the commencement of her prosperity. The placer mining season, now nearly passed, has been more than ordinarily prosperous. No extraordinary rich deposits have been brought to light, but in their stead, many new "pay streaks" have been uncovered in the older gulches; quite a number of minor placers, bars, etc., have been opened and prospected sufficiently to show that their products the coming year, will be very satisfactory; in fine, the place miners, as a class, have but little reason to complain.

Many gulches have been attacked, with a view to a rewashing by the process of mining, known as "bed rock flumes" and where these have reached the compact stratum underlying the gravels, they have invariably proved their efficiency in extracting

far more gold than was obtained by the first rude working of the miners. It is an incontestable fact that wherever a gulch has proved remunerative to the miner by the ordinary methods of washing, such placers may be reworked by bed rock flumes with brilliant results. In order to accomplish these ends, we require many concurring favorable circumstances: First—a considerable stretch of mining ground; second—a large volume of water; third—sufficient fall to obtain a "dump" i.e. a place to deposit the "tailings" from the flume; and lastly, a reasonably large capital. It has long been in contemplation to bring in the water of the Madison River to rework, in this way, the famous Alder Gulch; a gulch which has been, for a distance of sixteen miles, of a greater average richness than any other in the territory, or probably in the world.

A very large outlay will be required for building in the water, and for this reason the work has not yet been begun.

Next in importance is the project of fluming Last Chance Gulch, which passes through Helena, the largest and most prosperous city in the territory. One of the attaches of the Surveyor General's office has made a careful survey of the ground and his statement authoritatively proves the sufficiency of the fall; the only point in regard to which there has been the least difference of opinion. There is an abundance of water, immediately available, brought hither from Ten Mile Creek, in the ditches of Messrs. Trucit, Dahler & Atchison. Active efforts are now making to enlist our home capitalists in ths enterprise. That it would add new vigor to the placer washings all admit; and all are, in like manner, of the opinion that it would add at least twenty-five per cent. to the value of all the taxable property in the city. The only trouble to be apprehended is that personal pique or rival animosity may delay, although they cannot prevent a consummation so desirable. Messrs. KING & GILLETTE have just completed a half mile of fluming in Confederate Gulch, on the eastern side of the Missouri. It is, however, hardly probable that they will succeed in extracting any very large amount of gold before the winter sets in. Early in the ensuing spring they will be enabled to work with vigor and system.

Confederate, by the way, was the gulch from which a party of Germans, two seasons since, took out gold by the hundred weight. Colonel HEAD and partners have, this very year, taken out from $12,000 to $20,000 per week, and it has recently been reported, that new pay streaks have been uncovered, so that prospecting has again been undertaken quite down to the Missouri River.

New York gulch, likewise east of the Missouri, has been the scene of an extensive system of long and deep drain ditches, which will, doubtless, next year, give a good account for themselves.

It is quite possible to go on, almost *ad infinitum*, in particularizing the many points of favorable placers which are chiefly of interest, as proving that Montana still has diggings to reward the diligent and industrious miner. As a case in point, let me particularize an instance of a lucky German, who came up the river from St. Louis and who recently departed by coach for "the States." This man was a very "pilgrim," as the comers from the east are termed; he had no knowledge of mining, but was filled with a praiseworthy ambition assiduously to pay court to the fickle goddess. He armed himself with a miner's "outfit," and started out to prospect. Arriving in Deer Lodge County, he happened one day to observe the little heaps of gravel thrown out by the gophers in digging their burrows in the ground. He gathered up a panfull of the earth and gravel thus thrown out and panned it out in a neighboring stream. After getting rid of the worthless particles his eyes were gladdened by the sight of three cents worth of pure gold. Such a prospect would represent at least $18 coin per day to each hand employed in throwing the dirt into the sluice boxes. He staked his claim, went to work regularly and as a result of his summer's work, he has left the country with $3,000 in clean gold dust. Such is one man's good fortune. It is improper to call this mere luck. Rather let us denominate it the result of careful observation and diligent industry. Most of the drones, men who supinely wait for fortune to seek them, have left the territory. And this circumstance more than any other assures Montana's future. People now are content to labor; have made up their minds to remain here, and with a stable population, fixed centers of population, and habits of concentrated industry, none will have reason to regret a settlement in this portion of our mining territories. The recent Fair has further demonstrated the extreme fertility of our valleys. The samples of the hardiest cereals there exhibited will compare favorably with the best products of California. The cattle, sheep, horses, vegetables, etc., were a matter of surprise to many who had jumped to the conclusion that Montana was a country of spruce, fir, pine, snow and ice.

Space fails me to more than allude to the prosperous condition of the quartz industry. It is, however, susceptible of absolute proof that a larger proportion of mills and mines are to-day paying a profit than ever before, and it is probable that there has been proportionally less disasters in Montana's mines than in those of any other State or territory, not even excepting the golden State herself.

W. S. KEYES, M. E.

EXCITING DISCOVERIES AT DIAMOND CITY—NEWS FROM HIGHLAND.

The Montana *Post*, Oct. 30, learns as follows from Mr. Geo. H. Clark, recently from Highland: "Professor Swallow having completed his mill, is to start up crushing rock from the Ballarat and Forest Queen lodes to-morrow. His mill is one of the best arranged in the territory, is furnished with Wheeler's pans and all the contrivances to save gold. In running a tunnel in the mountains he struck a never-failing spring, which will furnish sufficient water for all milling purposes. All the arastras in that section are in full operation, and present prospects indicate future success."

The same paper Oct. 23, reports a great excitement at Diamond City by the discovery of rich deposits of gold in the lower portion of Confederate Gulch. It says: "During the latter part of last week, parties at work in the lower drain ditch, near the 'Canyon House,' found prospects of two dollars to the pan, and similar pay has been found in the drain ditch, next above. This becoming known, the whole gulch was immediately in a fever of excitement, each individual organizing a stampede on his own hook, and planting himself on the first unclaimed ground that he could find. The consequence is, that the whole gulch has been taken up by claim-holders as far as the stage station, at the very mouth of the canyon, and it is even thought by some that the ground will pay from that point the entire distance to the Missouri River. Confederate gulch is now staked its entire length, or over eight miles, and is rightly considered one of the best and most prosperous camps in the country. It now has fourteen drain ditches and bed-rock flumes, either in operation or in process of construction, in all of which satisfactory results are being obtained. It was thought by many that the ground above the mouth of Montana gulch would yield but light returns, but these conclusions have been proven to be false by the recent striking of rich pay in the Pilgrim drain ditch."

Idaho.

NEWS FROM FLINT AND THE OWYHEE DISTRICT MINES.

The editor of the Owyhee *Avalanche* having returned from a visit to Flint District, thus writes in his paper of Oct. 30, of the progress of operations there. He says: "Since our last visit, quite a number of new buildings have been erected in Flint. Many more would have been built if lumber and shingles could have been obtained. From its size and construction the Rising Star mill is the most prominent feature of Flint. We are told by those who ought to know that the building covers a greater area than any other quartz mill on the Pacific coast, which will justify us in saying that it is the largest in the world. The main building is 86 feet wide and 250 long, besides which there is an ore house 65 feet long and 24 feet wide, offices, retort house and other large buildings belonging to the institution. On Tuesday last, all the outside work was finished—the last shingle nailed on the roof and the last brick placed on the two huge chimneys, one of which belongs to the boilers and the other to the furnaces. The boilers are set, the battery blocks are all in, the furnaces are ready for arching over, and the engine bed is being laid. Although considerable inside work remains yet to be done, it is confidently anticipated that the mill will be in running order by the first of December. As to the method of working: The ore will first be broken in small pieces by means of Blake's Crusher, whence it will pass on an incline to a kiln and be thoroughly dried, after which it will go to the battery and be crushed dry. It will then pass by means of machinery through the furnaces and receive a roasting—these furnaces are an invention of Mr. O'Harra, who is superintending their construction; they are three in number, 103 feet in length. The pulverized ore is kept in constant motion from the time it first enters the furnaces till it is dumped into a car at the other end and goes into the pans. Substantial buildings, such as engine house, ore house, blacksmith shop, etc., have been erected at the mine, and everything is in fine working order. The main shaft is now down 185 feet, yielding splendid ruby silver ore, and plenty of it. The south drift is now in 300 feet from the main shaft and shows the lode to be as large and rich as ever. Mr. Perry is still busily engaged on the Forest. The shaft is now down 150 feet and shows ore fully as rich as any in Flint. At the bottom of the shaft the lode has not been cut through, but it is supposed to be from twelve to fourteen feet wide. Under Mr. Perry's able supervision, the Forest will doubtless take its place among the first class mines of Owyhee County. Black's mill has been thoroughly repaired and changed from wet to dry crushing. We are informed that it will commence running next week on some Rising Star ore belonging to the Iowa Company".....From the same paper we take the following Owyhee District items: Mr. Phebe, foreman at the Poorman, has the new steam hoisting works, nearly ready for operation. Plenty of ore will be taken out to keep the Owyhee mill pounding away all winter.....The engine house, ore house and other buildings at the Oro Fino are now completed. Everything is in tip-top shape, so that the storms of winter will not hinder the working of the mine. Rich ore continues to be taken out and it is thought that an extensive and good paying chimney has been found. If such should prove true the Oro Fino will yet come all right.....The Golden Chariot Company have struck richer ore than ever, south of the main shaft. The mine is in splendid shape for working, and will yield millions within the next twelve months.....Repairs are rapidly progressing on the Lincoln mill, and it will be ready in a few days to commence turning out again some more of those $22,000 bricks.

North Carolina.

THE "WILSON" STEAM STAMP-MILL.

GURNEY'S MILLS P. O., MONTGOMERY CO., NORTH CAROLINA, November 12, 1868.

EDITOR AMERICAN JOURNAL OF MINING:

Believing that you take an interest in the advancement of the mining interest at large, and would be pleased to hear of any successful improvement in the crushing of ores, I take the liberty of sending you an account of the now thoroughly-tested steam stamp-mill, generally known as the Wilson or Philadelphia Mill, the advertisement of which, I believe, is in your columns, accompanied by a cut, which is not now a perfectly correct representation, the present mill being far simpler and superior in every respect.

The company (Wilson Patent Steam Stamp-Mill Co.), before making their valuable improvement extensively known, have shown undaunted perseverance in thoroughly testing it; and for that purpose last spring leased the Russell Mine of Montgomery County, North Carolina, and by the first of June had their mill in operation, since which time it has been kept constantly running, except when it was difficult to obtain ore fast enough to supply it. At no time was it run nights, and seldom in the daytime was it driven to its full capacity, as it crushed too fast for the proper amalgamation of the sand and slimes, the gold being impalpably fine and light, and exceedingly difficult to save.

The mill has been tested with all kinds of ores, from the softest decomposed quartzose slate to the hardest flint quartz; and on the hardest rock its regular work is from twenty-four to thirty tons per day (24 hours), but a much greater amount could be put through the mill. As the superintendent has kept no regular account of the number of tons crushed, it can only be approximated from the best knowledge that can be obtained. The amount is placed not far from a thousand tons; yet, on a close examination of the mill, there can be seen no perceptible wear—in fact, the mill is so exceedingly simple and the wearing parts so few (only three), that there can be no wear or breakage. The stamps have now been in operation about five months, and not one minute has been spent in fixing or repairing. The millmen point to it with pride, and vie with each other in praising it. The remark is frequently made that it should be extensively known in the mining States and Territories, and especially in the copper regions, as its capacity for crushing the slate gangue rock for concentration would be enormous, and many copper mines now lying idle would be made profitable by using the Wilson Mill.

It is seldom a new invention meets with such satisfactory completeness in all the requirements of the work it has to do. Although I could say much more in praise of this stamp-mill, yet, for fear of trespassing on your valuable space, I will be brief. I hope that parties requiring crushing machinery will not fail to investigate the merits of the Wilson Patent Steam Stamp-Mill.

FURMAN R. WILSON.

Colorado.

Mr. HOLLISTER, writing of the mines of Gilpin County, under date, Central City, Nov. 2, in the Denver *News*, says: "The Black Hawk Company last week took up 300 ounces of gold, which is about their regular product for fifteen months prior to the giving out of their pump last winter. The Consolidated Gregory Company have just started fifty stamps. They are most admirably put up, the power, shafting, building, and everything so arranged, that another fifty stamps, which the company have on the ground, can be added on any time. They will be before the next season open, and the mine is not only in shape to keep them in ore, but might five times as many if pushed. The Narragansett mine is just getting in trim for working to advantage. From the bottom of the Sensenderfer mine no ore has been taken out for a year, on account of bad drainage, which it is hoped is now nearly under control. What I would get at is the fact that these four or five heavy companies have had no hand in raising the gold product from $100,000 to $175,000 a month, but are now prepared to take a hand. Professor Hill is purchasing $18,000 worth of ore per month. Allowing cost of working and profit to be 25 per cent., the product of his works is $25,000 a month, which would make the yield of Gilpin and Clear Creek counties, *now*, strong and full $200,000 a month. We might be satisfied to rest here, having doubled the yield in less than a year, but we shall not. A fine silver district has been discovered north of North Clear Creek, just below Black Hawk. The lodes are narrow, but very rich, and the croppings so close as to encourage the belief that they will concentrate at no great depth, in fewer and stronger veins. Mr. Teats is taking out, with the old German California reduction cylinders, (two of them) about 3,000 ounces of silver per week, getting the ore from this district, I did not learn from what lode. From another lode in this district, twelve to fifteen tons of ore, worth to Professor Hill $300 a ton, is being taken out weekly. Above the old Sensenderfer mill, on North Clear Creek, four stamp mills are now building. These, besides half a dozen that have been built, or repaired and started during the summer. Professor Hill is building another smelting furnace, with calcining furnace to match. Every old stamp mill in the country is in use. There have been two or three important discoveries made, right in the street, so to speak—gold lodes, producing heavily and steadily. In short, with reference to mining, the greatest interest of Gilpin County, it has doubled its product, as shown above, the present year, and it has been more a year of preparation than work, at that. It is my belief that this time next year, the monthly bullion product of the two Vasquez counties will be $300,000."

Arizona.

The Prescott *Miner* brings mining news to Oct. 3. It says: "Work is progressing finely at the Sterling mine. The shaft has been timbered, and men are now engaged in taking out ore. The Chase tunnel is now in about 180 feet. The rock taken out of it looks well, and is said to be rich.....The San Francisco *Call*, of September 17th, says: "The steamer Orizaba sailed for Los Angeles yesterday, carrying a considerable quantity of mining machinery intended for the mines in Arizona. Information from the Upper Colorado and Prescott satisfies those interested in the mines of those regions that prosperous days are in store for them, and that only a short time will elapse before they will be regarded as what they really are—the richest mines in the country."

Africa.

THE GOLD FIELDS IN SOUTH AFRICA—A NEW EXPLORING EXPEDITION.

News to the 14th of August has been received at Melbourne. Very excellent specimens from the gold fields have been sent to the Governor. Machen, the chief of the territory in which the diggings are situated, offered to hand it over to the Governor on reasonable compensation. Another diamond has been found near Cape Town, which weighed 13 carats. The mail steamer Cambrian arrived from England on July 16, bringing Capt. Faulkner, late of the 17th Lancers, and several other officers, who arranged, at their own cost and venture, a fresh expedition to the regions of the Zambezi and Nyassa. "Captain Faulkner," says the South African *Advertiser*, "is well and favorably known as one of the search party sent out last year by the government, to ascertain the fate of Dr. Livingstone. His object now, along with his associates, is to combine sport and exploration—to steam along Nyassa to its northern extremity, explore its eastern shore, and hunt the country down from thence to the Zambezi. The steamer they have built for the purpose is now on board the Cambrian, in no fewer than 75 sections, and, from a drawing we have before us, will look as elegant as she is substantial in build and ingeniously convenient in all her arrangements. She is two-masted, schooner-rigged, with curtained awnings provided amidships and in the quarter."

New Zealand.

It is stated in an Auckland paper that a very valuable discovery of gold has been made at Rapa, one of the Society Islands. A large number of Europeans are already on the diggings, and it is said are doing well. One person had found a nugget of solid gold which weighed nearly one pound. Captain Heymet says that coal has also been found at the Society Group. On the morning of the 14th of August the Chatham Islands were visited by three tidal waves. The settlement of Tupunga, on the northern side of the island, was entirely destroyed, and not a mark is left to tell where it stood. The inhabitants, principally Maories, narrowly escaped with their lives. The New Zealand *Advertiser* states that Mr. Schafer, the celebrated German traveler, is now making a tour of New Zealand on foot, also that the gold fields of Auckland are still drawing diggers. On the Thames there are now estimated to be 14,000 diggers. A few claims, where the reef has been struck, are doing splendidly.

South Australia.

The latest advices from South Australia report that the new diggings at Jupiter Creek are exciting considerable interest in Adelaide, and many parties have been formed to visit them. Reports from the north-eastern portion of the territory state that the grass and saltbush are being utterly destroyed by millions of black caterpillars. Diamonds have been found in the neighborhood of Jupiter Creek.

COPPER.

Michigan.

The following copper products are reported for October:

HANCOCK MINE.		
Mass	2 tons	1,850 lbs
Stamps	17 tons	247 lbs
Total	20 tons	069 lbs
EVERGREEN BLUFF.		
Mass	2 tons	57 lbs
Barrel	10 tons	1,413 lbs
Stamp	9 tons	1,471 lbs
Total	22 tons	941 lbs
KNOWLTON MINE.		
Mass	2 tons	910 lbs
Barrel	3 tons	1,810 lbs
Stamp	14 tons	676 lbs
Total	20 tons	1,396 lbs
HURON.		
Stamp, barrel and mass	90 tons	1,857 lbs
QUINCY MINE.		
Stamps	70 tons	440 lbs
Mass	4 tons	1,940 lbs
Total	75 tons	380 lbs

The *Portage Lake Mining Gazette*, November 12, has the following news:—"It is reported that orders have been received from France to commence work on the Clark or Kirby Vein, near the

Lake shore, where it was found so rich about a year since....At the Calumet, men are busily engaged in laying the rails for the automatic tramway between the shafts and rock house. The road will soon be at work. All other departments are reported as working on very smoothly and successfully....At the sale of the Concord, the property was bid in by Mr. E. P. Durant, for the sum of $10,600. It is reported that the sale was made with the express understanding that the Concord is to be consolidated with and operated hereafter as the Pewabic Mine....At the Schoolcraft, No. 3 shaft, about 25 feet below the first level, is looking very well, as is also the winze from surface 200 feet north. The stamps, engine and boilers are set, and fires lighted to dry the masonry. Steam will be raised and the engine turned over some time next week. The stamps will not be ready to start for a few weeks yet... The (October?) product of the Hecla Mine, reported to be 250 tons, is the largest product ever made by any mine in the Portage Lake District, and, so far as we know, the largest made by any mine on Lake Superior or the United States. In its palmy days, however, the Minnesota came very near, if not quite up to it. The new winter road from the stamps, skirting along the eastern base of the Mineral Range to Dollar Bay, and thence up along the north shore of Portage Lake to Franklin, is about completed. It has been cut out about twenty-five feet wide, and the hummocks graded down so that, with a moderate amount of snow, a very good road-bed will be made."....The agent of the Huron Mine, just from Boston, says, "that work at the mine will be pushed with vigor. Operations at the surface will be limited to such force as will be absolutely necessary to handle and manipulate the rock, while under ground the miners employed will be increased sufficient to keep the machinery moving at something like its maximum duty. For some months, nearly one-third the miners employed have been kept opening ground, and it is the settled policy that the force employed in sinking and drifting shall always exceed the demands made by stoping. The efforts to obtain additional water, by tapping a branch of Pilgrim River, has been successful, and the question of water will not again occur to interrupt the operations. The supply of water will be vastly greater than will ever be required for the mill. The stamp-mill, with sixteen new heads added, it is calculated will be able to take care of all the rock from the mine, after passing through the rock house, so that while legitimate mining will be augmented, by concentrating the use of machinery at the surface, the economy of operations will be greatly increased. The finishing mill, therefore, will be stopped....The Phœnix product for October is set down at 50 tons. It comes mainly from the west vein, which is said to be steadily improving. It is also said the mine earned a profit of $2,000 last month from its forty ton product....At the Isle Royale all explorative work has been stopped for the present, the ground having at last become saturated with water so that progress has been greatly retarded. But little work has been done in the way of examining the new vein first found on the Shelden-Columbian property, near the Isle Royale line, not as much as the appearance of the ground would warrant....The discovery on the Douglass property of the enclosing rocks and phenomena of the vein recently found by Mr. Forster, on the Shelden-Columbian, corroborates all that has been said concerning its being a master vein of contact, having its enclosing and contributing series of rocks and fissures—a group of rocks as strong, peculiar and continuous as any group composing the trappean formation. Discovered at points two miles distant, showing the same favorable characteristics, there is every reason for believing it is a master deposit, having concentrated within its walls an amount of wealth which shall greatly encourage a still further and closer examination of the eastern side of the range. This discovery will infuse new life and vigor into half a score of new mines now dormant or barely giving token of existence....At the Shelden-Columbian, a blast in the bottom of the Mass Shaft showed that the vein is widening in its downward course, and that another belt of coarse copper is coming in, this time in the hanging side of the vein. Several pieces of five or ten pounds weight were thrown out by the shot. As soon as possible the shaft will be started downwards, when richer developments may be expected."....Dispatches from Eagle River, dated November 12, give nothing very special or worthy of mention in the way of general news. The Cliff is sending down some heavy masses of copper, said to come from the neighborhood of No. 9, amygdaloid floor; at the 150, north of No. 4 shaft. The 160 is also showing better. The Central is "full of copper" yet, the heaviest coming from the 90—weighed off 110 tons of copper in October. The Copper Falls product, weighed off for October, was 61 tons. The mine is looking much the same as for some time past. Do not hear of anything rich in the bottom level, although the part of the vein carried in the drift north is showing copper. The new engine at Spencer Shaft will be ready for hoisting by the end of the week. This will be quite an event at Copper Falls, as they will then have two shafts on Owl Creek Vein for the discharge of rock, etc. The Pennsylvania, after picking out the last pound of copper to be found and made available, has been stopped. There was quite an excitement at Eagle River, last week, over the discovery of a mass of copper on the Union Copper Company's lands, lying between Bay State and Praysville. It was found in or near the road by a man who was getting out wood, and who was interrupted by a party of hunters. He went to town, got excited, divulged his secret, all but the locality, and created quite a furore. As near as can be learned, it is a float mass weighing about 25,000 pounds, and came from—nobody knows where. There are rumors of explorations to be commenced, but little faith is placed in them. Allouez is reported as still looking well. The Garden City has made arrangements to ship all its copper, not previously sent down.

Texas.

The chief of the Geological Bureau at Washington writes of the geology of Texas, in a letter to the San Antonio *Express*, under date of the 16th ultimo:—"Since my last communication, more specimens of copper ore, rocks, fossils, etc., have been received from Archer and Wichita Counties. The specimens of copper ore are of especial interest. They are all pseudomorphs, or substances which have the composition of one mineral and the form of another. They show the chemical changes which have taken place at different periods in the structure of mineral veins. This is the first variety of pseudomorphism observed in the United States in such form (resembling woody and vegetable substances.) As I have already mentioned in my former letter, the occurrence of this interesting copper ore exists in that locality in inexhaustible abundance, averaging from 55 to 60 per cent. of copper. It is easily smelted, and the strata in which it is found can also be more economically excavated than any other in which copper ores occur. The region belongs to the Permian formation, which has heretofore been mistaken for the Triassic system, overlying the former to the southeast.

"A. R. ROESSLER."

California.

☞ We learn that the copper mines at Buchanan Hollow, Mariposa County, are to be worked with renewed vigor and energy by the gentlemen who have recently taken them in hand. Vilas & Co. are said to have commenced operations on the right basis.

LEAD.

New Hampshire.

The Portsmouth *Journal* says: "We have been shown by Mr. Joseph Sanborn of this city, who have just visited the mine, some fine specimens of lead ore from Madison, in this State. This mine is situated about one and a half miles from the easterly shore of Six-Mile Pond, and about two miles from the proposed N. H. Central Railroad. It was discovered by a Mr. Tibbets in 1828, and was then worked by Mr. Colby of Madison, who soon abandoned it, being unacquainted with the proper methods of separating the metals. It was re-opened last summer by Messrs. Banks, Hall & French. It yields lead, zinc and silver. The lead ore gives 70 per cent., the zinc 53 per cent., and 6 pounds of silver are obtained from a ton of ore. The various ores are separated by their specific gravity. The ore is first broken up and then shaken together, the heavier particles settling to the bottom. The descent of the mine is 30 feet, perpendicular, north horizontal, 25 feet, perpendicular, 60 feet, then west 25 feet, then perpendicular, 15 feet—making a total descent of 105 feet."

IRON.

Michigan.

We condense the following summary of news in relation to the Lake Superior iron mines and furnaces from the Marquette *Mining Journal*, Oct. 24:—"The ore shipments of the Edwards mine so far this year show an increase of more than 300 per cent. over the product of any previous year. A new engine house to contain the engine and machinery for pumping and hoisting is being erected, and the engine and machinery, which is being made in Detroit, is expected to arrive about the 10th of November....Work is to be resumed on the Champion. Capt. Wilson continues in the employ of the company, and will have charge of the mine when operations are resumed....The main tunnel of the Washington has been driven a distance of about 400 feet, and it is thought will reach the ore on or about the first of November. Another tunnel is being driven southwardly, at right angles with the main drift, to the foot wall, a distance of about 300 feet. This last drift is designed to cut three separate veins, which have been explored on the surface, and which are 30, 35 and 45 feet, respectively, in width. When these tunnels are completed, mining at the Washington will have been reduced to a system, and can be prosecuted with the utmost ease and economy. They will afford an outlet for the whole product of the mine, and with renewed shipping facilities, we are warranted in promising largely increased products for the future....The Pioneer furnaces are doing a splendid business, making on an average forty tons per day, with an average consumption of a little less than one hundred bushels of coal. We apprehend that the figures will show a handsome increase over the product of last year.... The Champion furnace, in the first year of its operation, is reported to be doing an excellent business—making from eighteen to twenty tons a day. It is run principally on Lake Superior ore with a mixture of Champion magnetic, which makes a very fine quality of iron....The *Plaindealer* says that they are driving matters at the Cleveland mine this season. They have found a very large deposit of slate or granular ore. Indeed, it is not known how extensive it may be....They are down 20 feet on the incline of the New York mine. Capt. Pease has struck a new vein in the east wall that undoubtedly is the same as in No. 2 opening....Deer Lake furnace is reported as doing finely, averaging between nine and ten tons weekly. This is doing remarkably well for a small furnace. It will be remembered this furnace don't run on Sundays. The managers seem satisfied with the results.

Pennsylvania.

A correspondent writes, in the Reading *Eagle*, of the recent iron ore discovery in that vicinity. Dating from Fleetwood, Oct. 27, 1868, he says:—"The mountain ridge extending from Reading to the Lehigh Valley abounds with this metal in immense quantities. Valuable discoveries are almost daily made. The ore along the winter side of the hill is of a specular or hematite kind, the primitive lying exclusively on the summer side. Among the latest discoveries worthy of notice, is one made by Samuel Dunn, Esq., of Fleetwood, an experienced iron ore miner. The mines are about two miles east of Fleetwood, on lands formerly owned by William Reifsnyder and Levi Templin, Esqs., Mr. Dunn having since bought Mr. Templin's share. The ore is of the brown hemitate nature, and what is seldom the case, has been found in a solid bed forty-eight feet in thickness. It is very rich, and is thought to yield at least fifty per cent. of pure iron. This bed is literally inexhaustible, and altogether the most valuable ore known to us. The discovery has excited the neighborhood a good deal."

Wisconsin.

Says the Marquette *Journal*, Oct. 31:—"The steamer Washington, Capt. Vance, is now engaged in taking ore from Escanaba to the new iron works at Depere, Wis. Two or three small vessels are also engaged in the same trade, which have already taken large amounts of ore. The docks of the company are now so far completed as to be used for receiving and storing the ore, and on which there is at present somewhat over one thousand tons."

Manufacturing and Mechanical Notes

No. XXXIX.

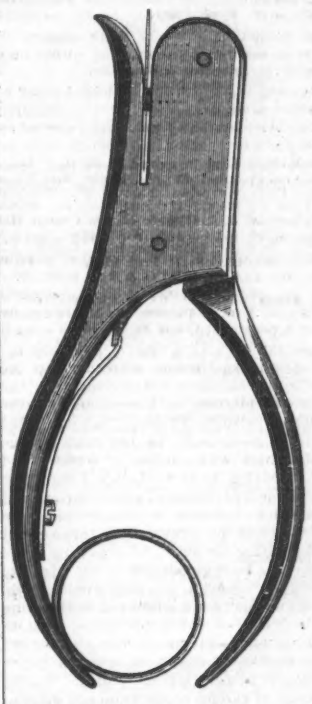
Electro-Plated Silverware.

Among the well-known firms that are celebrated for the manufacture of electro-plated silverware, may be mentioned the WEBSTER MANUFACTURING COMPANY, whose salesrooms are at No. 14 Maiden Lane, New York city. The company are manufacturers of Britannia, Albata, German silver, and silver-plated ware. Although a high reputation has been attained by some American establishments for the manufacture of solid silver, it is of recent date that the subject of electro-plating has received much attention in the United States. As made by the WEBSTER COMPANY, the electro-plate consists of a base of a cheaper metal and an external coating of pure silver. The base metal employed is what is known as Britannia, and is composed of the best Malacca tin, with a proportion of copper and antimony in alloy. This is thoroughly incorporated by melting, and is run into slabs about five-eighths of an inch thick, each weighing 21 pounds. These slabs are rolled out into sheets of various thicknesses and cut into circular blanks, preparatory to being spun upon a lathe or shaped by a drop into various forms; these are then soldered to other shaped pieces, and constitute cups, tea-setts, castors, cake-baskets, etc. The handles and ornamental portions that cannot be formed by spinning or the drop, are cast in brass moulds, and likewise attached by soldering. The articles are then engraved and chased, after which they receive the coating of silver and are burnished suitable for the market. The battery employed is that known as the Smee Battery, which, by its constant action, is best adapted for the purpose. The solution used is a cyanide of silver. The articles to be plated are suspended in the solution by wires from a bar placed over the vessel that contains it: the electric current is then passed through them, and the silver deposit begins; the necessary amount deposited being ascertained by a series of weighings.

German silver handles for cutlery are another article of manufacture, and these are formed by cutting out properly-sized blanks from sheets of metal, which blanks are then shaped by subjecting them to the action of a drop falling upon the die that shapes them to its surface. These blanks are then trimmed by means of a cutting die in a press and soldered together, then attached to the blades and plated. For neatness of appearance and elegance of form, the articles of electro-plated ware manufactured by the WEBSTER MANUFACTURING COMPANY are second to none in the market.

Holden's Improved Conductor's Punch.

The annexed engraving represents a neat description of punch for use by conductors on railroads, or for use in counting room, theatres, and other places of business and amusement, where a check permit is required. The cut shows the punch full size. It will be observed that it is pivoted to one handle and operated by a lever of the second class upon the other handle. When required, the instrument can be made to punch a hole resembling any particular letter or other character of the figure of a cross, a heart, a star, a half-moon, or circular, rhomboidal, and polygonal figures.



These characters—some seventy-four in number—can be furnished to suit parties who may select a figure for special purposes, and one not easily copied. The punch was patented by CYRUS B. HOLDEN, of Worcester, Mass., August 14th, 1866. Orders will be attended to at the salesroom of LUCIUS W. POND, 85 Liberty street, New York City.

Guest's Electro-Magnetic Burglar and Fire Alarm.

This invention is designed for the protection of property against burglars and fire. Simple in appearance and construction, subtle and silent in its action, it is one of those inanimate servants that are ever reliable, keeping vigilant watch over the trust reposed to its charge. The agent that controls its movements is electricity, which is generated by the well-known sulphate of copper battery, and with the exception of this and the connecting wires, the entire apparatus is shown in the annexed cuts. The alarm bell, with the magnets, armature, and other accompaniments is shown in Fig. 1. Only one bell is required, and this may be placed in any convenient place, as at the head of a bed, and when in connection, will give instant and certain warning, if a door or window be opened ever so little, or if the heat of the room be raised above a certain temperature, as in case of a fire. The indicator is shown in Fig. 2, and no other portions of the apparatus, except the bell, is exposed to view. The battery is placed in a closet or other convenient out of the way place, and the wires that connect the indicator with the several exposed situations, are introduced into the building without damage to paint, furniture, or in any way marring the beauty of the premises. In addition to being a burglar alarm, it is also an unerring fire alarm, thus increasing its value. This is shown in Fig. 3. Two methods are employed to give an alarm of fire; one being the expansion of mercury and the other the expansion of a column of air. The simplicity of the alarm is such that only a few minutes will suffice for any one to understand the decided improvements that make it the only apparatus that is perfect for the combined detection of burglars or fire. The whole arrangement is controlled by a switch, which attaches the alarm, so that if a fire occur or a window be opened even the least trifle, it will give instant alarm. During the day the instrument may be detached, so that it will quietly repose until its services are required. The expense of the apparatus is moderate, and its working warranted effectual. For further information apply to J. H. GUEST, No. 81 Nassau street, New York City.

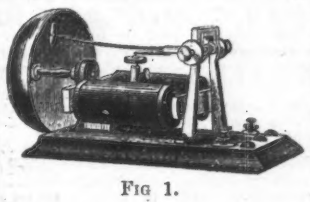


FIG. 1.

FIG. 2.

FIG. 3.

MARKET REVIEW.

FRIDAY EVENING, NOV. 20, 1868.

Gold and Silver Stocks.—The transactions in mining stocks at the board are very limited, so far as the amount of business done is concerned. Some Colorado stocks still retain their advanced rates, Consolidated Gregory selling as high as $5 10. Smith & Parmelee continues to decline. In Nevada Stocks, Combination is quoted at $4, and Twin River at $1. Manhattan is not on the market. Quotations to-day were as follows:

	Bid.	Asked.		Bid	Asked.
Alameda Silver	..	25	Kipp & Buell Gold	..	10
American Flag	.. ..	25	La Crosse Gold	15	18
Bates & Baxter Gold	.. ..	50	Liberty Gold	..	3
Benton Gold	25	35	Manhattan Silver	100 00	.. ..
Bobtail Gold	.. ..	1 25	Midas Silver	..	15
Black Hawk Gold	6 50	....	Montana Gold	45	47
Consolidated Gregory	5 00	5 15	New York	75	1 10
Edgehill Mining	....	2 50	Nye Gold	.. ..	3
Gold Hill	.. ..	1 00	Owyhee Mining	17 00	....
Gunnell Gold	.. ..	50	People's G. & S. of Cal	.. 5	25
Grass Valley	40	..	Quartz Hill	85	87
Hamilton G. & S. B	.. ..	85	Rocky Mountain Gold	09	.. 15
Holman	.. ..	5	Smith & Parmlee Gold	4 15	4 30
Hope Gold	.. ..	10	Texas Gold	.. ..	5
Twin River Silver	1 00	5 00	Corydon	..	20
Gunnell Union	.. ..	30	Symonds Fork Gold	30	....
Combination Silver	4 00	..	N. Y. & Eldorado	..	10

Copper Stocks.—Following are the quotations: Davidson Copper, 60c.; Minnesota Copper, $3 00. The prices of other stocks were not made public.

The following will show the prices of Copper stocks bid in Boston this day, (Nov. 20.)

Copper Falls	13	Quincy	14
Franklin	..	Cary Improvement	8
Hancock	3½	Water Power	15
Minnesota	2	Bos. Hart. & Erie R. E.	27½
Calumet	..	Isle Royal	..

Petroleum Stocks.—Business is more active, and prices throughout the list still continue higher. Following are the quotations to-day:

	Bid.	Asked.		Bid.	Asked.
Bennehoff Run	.. 50	1 00	Rynd Farm	17	22
Brevoort	..	....	United Pet. Farms	.. ..	..
Buchanan Farm	40	44	Union	8 50	....
Central	..	60	United States	1 95	2 05
Clinton Oil	1 10	....	Sherman & Barnsdale	85	95
National	3 55	3 50	Second National	.. 2	.. ..
N. Y. and Alleghany	.. ..	2 00	Bliven	.. ..	.. ..
Pithole Creek	40	90	Rathbone	.. ..	.. ..
Home Petroleum	....	....	Northern Light	.. 30	....
Pacific Oil	.. ..	....			

Miscellaneous Stocks.—Wallkill Lead is quoted at 6@15c.; Del. & Hud. Canal, 130; Cumberland Coal Preferred, 40@40½; Pacific Mail Steamship Co., 115¼@115½; Mariposa Pref., 20½; Adams Express, 49½; Merchants Union Express, 20; New York C., 124½@124¾; Erie, 41¼@43; Hudson River, 124; Reading, 98¾; Mich. S. & N. I., 84¼@85; Illinois Central, 141¼; Clev. & Pitts., 86¾; C. C., Cin. & Ind., 75; Cb. & N. W., 84¼@85; Chi. & N. W. Pref., 86¼@86¾; Clev. & Tol., 99¼@100; Lake Shore R. E., 79¼@98; Chi. & R. I., 106¼@107; Mil. & St. P., 66; Mil. & St. P. Pref., 82¼@83; P. Ft. W. & C., 108¾; Tol. W. & W., 57; Del. L. & W., 127¼; O. & Miss. R. Pf., 79.

State, R. R. and Other Bonds.—Tenn. St. 6's, ex cpn., 69; Tenn. St. 6's, new, 67@68; N. Car. St. 6's, 65; N. C. St. 6's, new, 64; Missouri 6's, 90; Erie 1st, 101½; Chi. & N. W. con. conv'e, 98; Chi. & N. W. 1st M., 70; Ill. Cent. Bonds, 114½; Ha. & St. Jos. L. G. B., 109; G. & C. 1st, 100; A. & T. H. 1st, 93; Gt. West. 2d, 76½; Mil. & St. P. S's, 1st M., 102; Am. Dock & Imp. Co. 7's, 96½; St. L. & Iron M. 1st Mortgage Bonds, 86@86½; Fourth Nat. Bank, 105

Government Stocks.—Governments continue to show a steady upward tendency. Some doubt has been felt among dealers whether the market, after the recent test of its strength, would assume an upward or downward tendency; and the steady orders coming in so soon after the easing of money, appears to have determined, in the view of dealers, that the tendency is to be upward, and that the effect of the elections upon the Government credit, hindered by the unnatural condition of the money market, will now have its force, producing higher prices. Within the last two weeks a good amount of bonds has been sent to Europe, and Sixty-twos are consequently very scarce. The investment demand is reported healthy. Some of the Insurance Companies are buying, and yesterday an order was received for $250,000 of bonds from a Philadelphia Bank. Prices range:

U. S. 6s, 1881, coupon	114¼@114¾	U S 5-20s, '65, new coup.	110¼ 110¾
U. S. 5-20s, 1862, coupon	110¾ 110¾	U. S. 5-20s, 1867, coupon	110¾ 110¾
U. S. 5-20s, 1864, coupon	107¾ 107¾	U. S. 5-20s, 1868, coupon	110¼ 110¼
U. S. 5-20s, 1865, coupon	107¼ 107¼	U. S. 10-40s, ex. coupon	105¼ 105½

Foreign Exchange.—Foreign Exchange is firmer. The steadier feeling in gold, and the cessation of irregular rates on lending it, have removed obstacles to the importers' buying. The continued loss of money by the Bank of France, and the drain of gold from the Bank of England, with an advance in the bank rate, have induced greater firmness among drawers. We quote:

Lon. (pr. bks), 60 dys	109½@ 109¾	Swiss	5.20 5.17½
Lon. (pr. bks'), sight	109¾ 110	Hamburg	36 ..
London, prime com	....	Amsterdam (bankers')	41 41¼
Paris (bankers'), long	5.17½ 5.16¼	Frankfort (bankers')	40¾ 41
Paris (bankers'), short	5.15 5.13¾	Bremen (bankers')	78¼ 78¾
Antwerp	5.20 5.17½	Berlin (bankers')	71¼ 72¼

Gold.—The price to-day has ranged between 134@134¼.

The money market maintains the easier feeling growing out of the release of the money tied up by speculators. The banks are lending at 6@7 per cent. on call, and the private bankers at 5@6 per cent., the latter having unusually large balances on hand.

This morning the Bank of the Commonwealth appears debtor at the Clearing House $2,500,000 which may indicate a further release of funds hoarded by speculators. Some counteraction to the relief from these sources may be expected from the Treasury reimbursing itself for losses of currency during the crisis.

The Assistant Treasurer has sold moderate amounts of gold, within the last three days, and this morning advertises the sale of $3,000,000 next week, to be made in daily installments of $500,000. The balance in the Sub-Treasury has increased about $2,000,000 this week, probably mainly from these sales.

Discounts do not reflect the rate apparent on call loans. The banks appear disposed to employ a good portion of their funds on call, until it becomes more apparent that no further resort will be had to tying up transactions; and hence the rates on demand loans are low, as compared with discounts; prime paper is current at 8@10 per cent. outside the banks.

The following will show the Exports of Specie from the port of New York or the week ending November 14, 1868:

Total for the week	$252,050
Previously reported	68,207,430
Total since January 1, 1868	$68,459 480
Same time 1867	$44,377,729
Same time 1866	57,150,013
Same time 1865	26,495,103
Same time 1864	$42,499,011
Same time 1863	40,086,198
Same time 1862	52,500,520

The following are the quotations for coin:

American silver	96 @ 97¼
Mexican dollars	103½ 104½
English silver	480 485
Five francs	96 97
English sovereigns	486 490
Twenty francs	384 388
Thalers	70½ 71½

The Specie Market is thus quoted:

(Quotations of value in gold.)

American Gold, Old Coinage	— —	@ 4	pre.
American Half-Dollars, Old Coin	1	1¼	pre.
American Quarter-Dollars, Old Coin	— —	—	par.
Portuguese Gold	par.	1	
Spanish Dollars	— 2¼	3	pre.
Spanish Quarter Dollars, per oz	— —	1 19	
Spanish Quarter-Dollars, perfect, each	— —	— 22	
Mexican Dollars	— 3¼	4¼	pre.
Mexican Quarter-Dollars, perfect	— —	24	
South American Dollars	— —	—	par.
Five FrancPieces	— 95	— 95½	
Doubloons, Spanish	16 —	16 25	
Doubloons, Patriot	15 50	15 65	
Napoleons	3 83	3 86	
Heavy Guineas	4 95	4 98	
Sovereigns, Light and Heavy	4 85	4 87	

☞ A heavy sovereign weighs 5 dwts. 2¼ grs.

Petroleum.—Crude, in bulk—The business has been very moderate, owing to the small supply; higher prices are demanded. We quote at 15¼c. Refined standard white. There is a good inquiry, but there is not much offered, and the business is only moderate. Prices are about two cents higher closing at 37c. The sales are 1,300 bbls. at 30c., 30¼c. and 31c. For Philadelphia delivery the market is unusually excited. The transactions are large, mostly on speculation. Prices are decidedly higher. The sales foot up fully 72,000 bbls., at 27@29c. for November and December, and 28¼c. for December; line from April to December at 32¼c., including other lines the prices of which were not ascertained, closing at 28¼@29c. for November and December.

Receipts for the week ending Nov. 17	pkgs.	8,462
Exports for the week ending Nov. 17	galls.	366,759
Exports from Jan. 1	galls.	47,310,542
Exports same time last year	galls.	28,253,100

The following is the quantity exported from other ports, Jan. 1 to Nov. 14.

		1868.	1967.
From Boston	galls.	2,267,517	2,014,427
Philadelphia		33,665,224	25,621,106
Baltimore		2,417,725	1,306,707
Portland		580,040	800
Total		38,930,866	28,943,340
Total exports from the United States		87,509,683	57,450,739
Same time in 1866			58,676,802
Same time in 1865			22,400,482

Copper has been exceedingly quiet. The sales foot up 400,000 lbs. Baltimore, 22¼@22½. Portage Lake, 22½@22¾. Detroit, 24½; 50,000 lbs. Detroit for Dunbar delivery was sold at 22½.

Spelter.—Is in small stock, and sells at 7c. gold, from ship. To arrive. Silesian is quite, 6¾c. gold.

Lead.—A jobbing business at 6¼@6½ gold. for ordinary foreign.

Zinc.—The price for Zinc is 8¼c. gold, or 13c., currency. Zinc, White French, 12c. currency; American, 8c., currency.

The London market has declined to £68 for Chili Bars.

Tin.—Straits has been sold at 26c., 30 days, but it can be bought at 25½c. Sales 3,300 slabs, including 500 to arrive in Boston at 25½@26. Banca, 29½; 30 tons of English was sold at 25½@25¾, 30 days, all gold.

The European markets show a rising tendency. Straits in London 102s.; at Banca; in Amsterdam, 59½ florins.

Oils.—Crude Sperm has been in demand for export, and sales have been made of 2,400 bbls. at New Bedford, at $1 78@$1 90; 625 do. here, and 660 do. at New Bedford and Boston, on private terms. Whale is dull, and we hear of no sales. Manufactured are quite and unchanged. City Linseed is dull, and prices favor buyers; sales have been made of 5,000 gallons at 93 cents. and 5,000 do. December delivery, 95—Crushers ask 95@96 cents. in casks. In other kinds, we note sales of 50 bbls. prime City Winter Lard at $1 46@$1 50; 100 do. Western Saponified Red, 85 cents., and 100 do. West Virginia Lubricating, 29@30 gravity, 47½. Palm is selling in jobbing lots at 11¼ cents. for ordinary, and 13 for prime—a lot of 67,000 lbs, sold on private terms.

Lime.—There continues a good demand for Rockland at the decline noticed in our last. We quote Common $1 60, and Lump $2, cash.

Cement.—The market for Rosendale is active at $2, cash.

Plaster Paris.—We notice a sale of 218 tons White Nova Scotia Lump at $4 50, cash.

Cordage.—Russia Bolt Rope may now be quoted 21 cents, a reduction of one cent. Manila is steady at 22½@23¾ cents. for large and small sizes.

THE IRON TRADE.

NEW YORK, NOV. 20, 1868.

We have but little change to report. Prices remain firm, with nominal inquiry and supply—small sales of American Iron at $43 00 for best brands. Forge Irons are scarce and higher. Scotch Iron is higher; sales have been made of Glengarnock, from yard, at $44 00; small lot from ship at $43, now held at $43 50; 900 tons of Eglinton—being a cargo to arrive—was sold at $40 50@41. Scrap Iron remains quiet; it is held at $46 from yard, and $43 from ship. Old Rails—Sales have been made of 250 tons, D. H., here and to arrive, at $46 50; 600 tons T. & D. H. on private terms. We also note 1,000 tons at sterling price, to arrive at Philadelphia. Bar is in small supply, many European vessels being over due—50 tons Refined sold from store, to the Trade, on private terms; the jobbing trade continues dull at our quotations. Trenton Refined Bar may be quoted at $90 ₱ ton from manufacturers hands.

BOSTON, November 18, 1868.

The demand for Pig Iron is very poor, and full prices continue to be obtained. The sales of Scotch, Gartsharie and other brands have been at $41@$44 per ton; and American Pig at $40@$45 per ton as to quality. In Boston the sales have been at previous prices, in small lots as wanted. Russia Sheet Iron is held at 12@15 cents. gold, but no sales of any importance.

Imports of Pig Iron from January 1 to November 7, 1868:

	1868.	1867.
From Great Britain, tons	19,814	29,655
Coastwise Ports	13,915	8,632

PHILADELPHIA, November 17, 1868.

In Pig Metal there is no change to notice. Sales of No. 1 Anthracite at $42@$43, and No. 2 at $38@$40. Scotch Pig is quite at $43 per ton, and Forge at $35@$35 50 per ton. Manufactured Iron commands $87 50 for Bars. Blooms are quiet

Lehigh Valley Iron Trade.

Pig Iron transported by the Lehigh Valley Railroad Co. for the week ending Nov. 14, 1868:

From	Tons.	Total.
Carbon Iron do	1i0	7,580
Lehigh Valley Iron Co	835	7,765
Thomas Iron do	580	27,680
Lehigh Crane Iron do	939	25,630
Allentown Iron do	595	20,995
Robert Iron do	120	8,590
Glendon Iron do	610	18,990
Other Shippers	430	13,400
Total	3,710	130,690

Lake Superior Iron Trade.

Receipts of Ore and Pig Iron at Marquette, up to and including Saturday, Nov. 7, 1868, by the Marquette and Ontonagon Railroad.

IRON ORE.

	To October 31. Prev'ly rep'ted.	For past week.	Total.	To November 7. Prev'ly rep'ted.	For past week.	Total.
Lake Superior Iron Co	89,949	17,99	91,748	91,748	1,648	96,397
Cleveland Iron M. Co	35,245	478	35,720	35,720	615	36,335
Marquette Iron Co	8,298	185	8,483	8,488	128	8,611
Washington Iron Co	27,625	1,326	28,951	28,951	929	29,880
New England Iron Co	8,058	..	8,058	8,058	...	8,053
Edwards Mine	16,267	627	16,894	16,894	802	17,696
Pitts. & Lake A. Iron Co.	21,717	..	21,717	21,717	....	21,717
Champion Mine	2,140	498	2,639	2,639	888	3,477
Ore to Local Furnaces	24,974	848	25,822	25,822	706	26,528
Total Iron Ore, tons	234,266	5,761	240,027	240,027	5,666	245,693

PIG IRON.

Morgan Iron Co	7,644	223	7,887	7,887	258	8,145
Greenwood Iron Co	1,00s	165	1,188	1,188	155	1,343
Bancroft Iron Co	3,424	149	3,573	3,573	142	3,715
Collins Iron Co	4,119	28	4,142	4,142	158	4,300
Michigan Iron Co	4,019	281	4,300	4,300	97	4,397
Total Pig Iron, tons	20,229	861	21,090	21,090	810	21,900
T'l ore and pig iron, t'ns.	254,495	6,622	261,117	261,117	6,476	267,593

Market Prices.

NEW YORK, NOV. 20, 1868

DUTY.—Bars, 1 to 1¼c. per lb.; railroad, 60c. per 100 lbs.; boiler and plate: 1¼c. per lb.; sheet, band, hoop and scroll, 1½ to 1¾c. per lb.; pig, $9 per ton, polished sheet, 3c. per lb. Payable in gold.

Am. pig, fy. No 1, best,	$41 00@43 00		
" " 2x frdy,	36 00	39 00	
" Grey Forge	34 00	36 50	
White and Mottled	....	31 00	
Pure white for Cal. mar.	32 50	— —	
Scotch Pig, No. I, best bd	43 00	45 00	
" " " outside,	43 00	— —	
Wt. No. 1 Scrap f'm yd.	....	46 00	
Ex ship	44 00	....	
Bar, Ref., En. & Am.	90 00	92 50	
Bar, Sw's, as. sizes, gold	87 50	80 00	
Old Rails	47 00	....	
R.R. Iron, For., fm Stock			
gold	51 50	52 50	
R. R. Iron For., to imp.	50 00	— —	
" " Amer. at wks.			
currency	77 00	— —	
R. R. Iron, Am., deliv'd	80 00	— —	
Stl rails of any pattern at			
works, currency			
Solid Steel rls. For., gd.	110	— —	
Street Rails at works	85 00	— —	
Light rls. for mines &c.			
at works	$85 00@	— —	
Do. delivered here	....	— —	

STORE PRICES.

Bar, Swedes, ord'y sizes	— —	155 00
Bar, Eng. and Am., rf'd.	— —	100 00
Bar, Eng. & Am., com.	— —	90 00
Scroll	180 00	175 00
Ovals and half round	125 00	155 00
Band	180 00	— —
Horse Shoe	180 00	— —
Rods, ⅜@3-16 inch	105 00	165 00
Hoop	185 00	190 00
Nail Rod, per lb	9¼	10¼
Sheet, Rus. as'd. Nos. (gold)	11¼	18
Sheet, a'gle. D & T. com	5½	7¼
Rails, Eng., gold, ton	51 00	52 00
Rails, American	79 00	81 00
STEEL.		
English, cast 2d & 1st qual.	18	@23
Eng. Spring 2d & 1st qual.	10	12½
Eng. Blister 2d & 1st qual.	11½	20
English Machinery	13½	16
Eng German 2d. & 3d qual.	14	16
Am. Blister, "Black Diam'd,"	10½	16
American, Cast, Tool "	19	—
American, Spring "	10	13
American Machinery "	—	13
American German "	10	13

PITTSBURGH, November 14, 1868.

The market during the week, says the *Commercial*, was firm, with a fair demand for most descriptions. The rise in the Ohio has increased the receipts by that channel, still the stock on hand is not more than sufficient to supply the current wants of the trade. Certain favorite brands are said to be in limited supply. The operations for the past two weeks were as follows:

	Last Week.	This Week.
Anthracite	240 tons.	315 tons.
Bituminous	2520 tons.	1545 tons.
Charcoal R. H.	545 tons.	100 tons.
Alleghany Coke	....	300 tons.
Total	3,305 tons.	2,260 tons.

Showing a decrease in sales of 1045 tons as compared with the week ending November 7. We are reported the following sales:

ANTHRACITE.

100 tons Chickie's Forge	$41 00—cash
20 tons No. 2 Foundry	41 00—4 mos
50 tons No. I Anthracite	42 00—4 mos
50 tons No. 2 Anthracite	41 00—4 mos
75 tons White	35 00—4 mos
10 tons No. 2 Anthracite	40 00—4 mos
10 tons No. 1 Anthracite	43 00—4 mos.

COKE.

200 tons Alleghany Coke	38 00—6 mos
100 tons Alleghany Coke	38 00—6 mos

BITUMINOUS COAL SMELTED FROM LAKE SUPERIOR ORES.

300 tons Medium Gray Forge	39 00—4 mos
240 tons Medium Gray Forge	39 00—4 mos
160 tons Good Gray Forge	40 00—4 mos
50 tons Good Gray Forge	40 00—6 mos
100 tons Good Gray Forge	40 00—4 mos
70 tons Medium Gray Forge	39 50—4 mos
300 tons Medium Gray Forge	38 50—cash
100 tons Medium Gray Forge	38 50—cash
100 tons Medium Gray Forge	39 50—5 mos
75 tons Mottled Gray Forge	38 75—4 mos
50 tons White Forge	38 00—cash

CHARCOAL.

100 tons Lake Superior Charcoal Forge	47 00—4 mos

BLOOMS.

25 tons Juniata	93 00—6 mos

CINCINNATI, November 16, 1868.

PIG.—Receipts continue light, and with fair demand prices are maintained at the advance.

	Per ton. Days		Per ton. Days
Hanging Rock H. B. Mill.	$37 38—90	Tennessee Cold Blast	43 45—90
Hanging Rock H. B. Fou.	41 42—90	Missouri	47 50—90
Hanging Rock Cold Blast.	53 ..—90	Jackson (stone coal) Fou.	38 39—90
Hanging Rock Car Wheel.	55 60—90	Blooms	100 105—90

MANUFACTURED.—Trade is quiet, but no change in prices.

	B.		C. C.		B.		C. C.	
Flat Bar	4	4½	5½	5¾	Half Oval and ½ Round	4½	5¼	6 6¼
Horseshoe Iron	5¼	6	6¾	7½	Angle Iron	5¼	6¾	6¾ 7½
Heavy Band	4½	5	6	6¼	T & Hollow Rail Iron	6	..	7½ ..
Round and Square	4	8	5½	9½	Saw-mill Track	..	6	7½ ..
Saddle tree	5½	6	6¾	7¼	Sheet Iron, 10 to 17	..	5½	8¾ ..
Hoop and Light Band	5½	9¾	6¾	11	Sheet Iron, 27	..	6¾	9½ ..
Oval Iron	4½	5½	5¾	6¾	Boiler-Plate, 3-16, 5-16	..	..	7 ..

MILWAUKEE, Wis., November 16, 1868

PIG IRON.

No quotable change in prices.

Buffalo Union, A 1	$49 00	Lake Superior No 3 (charcoal)	43 00
Buffalo Union, B 1	46 00	Iron Ridge, No 1 (Sweed's)	43 00
Lake Superior No 1 (charcoal)	43 00	Scotch	48 00@53 00
Lake Superior No 2 (charcoal)	42 00		

MANUFACTURED IRON.

Flat Bar	$0 38@0	42½	Round and Square	3¾ 7¾
Horse Shoe	5	5½	Oval	4½ 5
Heavy Band	4½	5½	American Spring Steel	11½ 13½
Hoop and Light Band	5	10	Plough Steel	11½ 13½
Eagle Sheet Iron	6¾	9¾	Am. Tool Steel (best)	.. 17½
Boiler Sheet Iron	5¾	6¾		

LONDON, Eng., October 30, 1868.

IRON.—In Staffordshire there has been rather a falling off in the demand for the larger sizes of merchant bars, especially for the foreign markets, and an improvement in this department can hardly be expected at present, as the Baltic market, which takes a large quantity of this description, will shortly be closed for the season. There is a moderately good demand for the home market especially in smaller sizes, though that trade shows rather less animation than it did a few weeks since. The ironmasters generally, both of South and North Staffordshire, anticipate a brisk demand next spring. In Welch the shipments of iron have slackened a little, consequent upon the closing of the Russian season, and the clearances for the United States are not quite so large as they were. American advices are not unfavorable as to future requirements. With the South American markets business is almost at a standstill. The continental inquiries show no material change, but there is a tendency towards improvement. Home engagements are more numerous and more freely offered, principally on account of the railway companies. In Swedish Iron the demand has slackened. In Scotch pig iron the market has been inanimate, the last price received from Glasgow being 52s. 10d, cash.

Steel remains without alteration.

Iron.	Per ton.		Iron.	Per ton.	
Bars, Welsh, in L'n	£6 10 0	£6 12 6	Pig, No 1, in Clyde	2 14 3	2 18 3
Bars, W., to arrive	6 10 0	. . .	Pig, f o b in Tyne or Tees	2 9 6	. . .
Nail Rods	6 15 0	7 0 0	Pig, Nos 3, 4, f o b in Tyne or Tees	2 6 6	2 7 0
Do., Staff'e, in L'n	7 10 0	8 10 0	Railway Chairs	5 10 0	5 15 0
Bars, in London	7 10 0	9 10 0	Railway Spikes	11 0 0	12 0 0
Hoops, in London	8 2 6	9 15 0	Indian Charcoal Pigs, in London	7 0 0	7 10 0
Sheets, single	9 2 6	11 0 0	Steel.		
Pig, No 1, in Wales	3 15 0	4 5 0	Swede, in k's (rol'd)	14 5 0	. . .
Ref'd metal, in W's	4 0 0	5 0 0	Swede, in k's ham'd	15 0 0	15 10 0
Bars, com'n, in W's	6 0 0	. . .	Swede, in fagots	16 0 0	. . . 0
Bars, Merchant, Tyne, or Tees	6 10 0	. . .	English spring	17 0 0	23 . 0
Bars, railway, in W's	6 0 0	6 0 0			
Bars, Swede, in L'n	9 17 6	10 0 0			
To arrive	10 0 0	10 0 0			

THE COAL TRADE.

NEW YORK, Nov. 20, 1868.

The market is still in light supply, and strong prices are realized, but there is a tendency toward a slight decline. No reports of reduction are as yet made. We would advise persons not just in need not to be in a hurry to lay in a stock.

The 68th Scranton Sale, which is to take place on Wednesday, Nov. 25th, is advertised in our columns, at which sale 70,000 tons will be sold.

From Philadelphia we learn that the market is firm and active, no accumulations taking place. Freights are firm. The general feeling is that the collieries will be closed in the current month, preparatory to arranging a scale of wages for the winter.

The following will show the exports of coal from the port of New York for the week ending Nov. 17, and for the season to that date, also the amount exported last year for the same period:

Exports for the week	tons	2,853
Do. from January 1	do	58,910
Do. same time last year	do	60,881

BOSTON, November 18, 1868.

The market is fair for English Cannel, with sales at $18@$20 per ton Pictou and Sydney are steady at $8 50@$9; and Cumberland at $9 per ton. Anthracite continues in good retail demand at $12; and cargo prices are nominally $10@$11 per ton. There is a prevalent belief among coal dealers that the stock on hand in this city is smaller than in any previous year for some time, at this season; many estimating a deficiency of 100,000 tons, compared with last year, but the comparative large receipts since the first of September do not indicate this result.

PHILADELPHIA, November 17, 1868.

There is less doing, but prices are without any material change.

The following table exhibits the amount of Coal that was passed over the various routes of transportation from the Pennsylvania Coal districts for the week ending Nov. 14, 1868, and for the season to that date. A comparison is also made with the amount transported the corresponding week in 1867 showing the increase or decrease, as the case may be:

COMPANIES.	1867. WEEK.	1867. TOTAL.	1868. WEEK.	1868. TOTAL.	INC. OR DEC. WEEK.	INC. OR DEC. YEAR.
Phil. & Read. R. R.	69,394	2,941,748	95,194	2,775,498 i	5,800 d	139,250
Schuylkill Canal	32,183	924,555	35,459	1,086,915 i	3,276 i	162,360
Lehigh Valley R. R	46,545	1,846,521	54,740	2,115,290 i	8,695 i	268,769
Lehigh & Sus. R. R	8,176	450,007	15,142	445,705 i	6,966 d	4,302
Lehigh Canal	30,010	936,404	36,507	903,211 i	6,497 d	33,193
Scranton North	13,921	438,467	15,050	544,569 i	1,129 i	6,102
Scranton South	23,179	101,129	22,639	944,901 d	540 d	56,228
Penn. Coal Co. rail	18,563	743,547	19,714	816,910 i	1,151 i	73,363
Penn. Coal Co. canal	475	21,052	236	27,590 d	139 i	6,538
Del. & Hud'n Canal	41,574	1,266,187	46,116	1,486,505 i	4,542 i	228,318
Shamokin	12,440	429,586	11,036	442,676 d	1,404 i	13,090
Trevorton	1,693	42,453	1,762	33,273 i	69 d	9,180
Short Mountain	3,217	77,343	3,762	113,132 i	545 i	35,789
Lykens Valley Co.	2,549	75,620	1,520	77,872 d	1,029 i	2,252
Hunt'g'n & B'd T'p	5,184	205,617	7,096	235,172 i	1,912 i	29,155
Wyoming South	13,242	328,925	7,195	306,164 d	6,047 d	22,761
Wyoming North	....	61,379	3,344	81,731	 i	19,352
Williamstown Col.	3,869	113,073	6,169	166,799 i	2,300 i	53,726
Total	326,164	11,976,613	382,681	12,602,913		
			326,164	11,976,613		
Increase			56,517 i	627,300		

Schuylkill Coal Trade.

BY RAILROAD AND CANAL, FOR WEEK ENDING, NOV. 19, 1868.

	RAILROAD.	CANAL
St. Clair	30,975	....
Port Carbon	9,010	11,678
Pottsville	2,678	2,215
Schuylkill Haven	27,261	19,555
Auburn	4,064	....
Port Clinton	13,752	1,408
Company's use	3,681	....
Total for week	64,421	34,856
Previously this year	2,775,498	1,086,915
Total	2,839,919	1,121,771
Same time last year	3,011,132	956,738
Decrease	171,213	1 165,053

Lehigh and Susquehanna Railroad.

Report of Coal shipped for week ending Nov. 14, 1868.

WHERE FROM	WEEK. Tons. Cwt.	TOTAL. Tons. Cwt.
WYOMING REGION.		
Newport Coal Co	....	....
Albrig'ton, Roberts & Co	61 13	9,979 19
New England Coal Co	181 06	1,088 09
Morgan Mines	....	92 18
Warrior Run Mining Co	....	....
Parrish & Thomas	250 06	17,488 09
New Jersey Coal Co	504 19	14,914 18
Gaylord Mines	....	245 01
Delaware & Hudson Canal Co	312 06	9,872 17
Lehigh & Susquehanna Coal Co	....	15 10
Germania Coal Co	336 05	18,560 00
Franklin Coal Co	....	243 15
Audenreid Improvement Coal Co	....	....
Wilkesbarre Coal & Iron Co	9,403 06	275,765 09
Union Coal Co	....	2,040 07
Mineral Spring Coal Co	197 07	8,731 09
H. B. Hillman & Son	356 15	2,216 08
Bowkley, Price & Co	232 14	2,490 09
Wyoming Coal & Transportation Co	108 11	4,040 11
Henry Colliery	474 18	7,316 08
J. H. Swoyer	342 08	5,219 16
Everhart Coal Co	280 19	585 18
Morris & Essex Mutual Coal Co	....	78 19
Shawnee	529 19	19,329 01
Pine Ridge Colliery	511 04	9,703 04
Lances Colliery	262 03	3,153 07
Consumers Coal Co	203 18	5,093 04
Harvey Brothers	....	184 11
Lehigh & Luz. Coal Co	541 12	1,018 17
Other Shippers	294 18	9,611 10
Total Wyoming Region	15,417 12	428,931 00
UPPER LEHIGH REGION.		
Upper Lehigh	3,717 02	110,529 04
Other Shippers	277 15	10,432 15
Total Upper Lehigh Region	3,994 17	120,961 20
HAZLETON REGION.		
A. Pardee & Co	2,899 02	70,144 14
Linderman & Skeer	....	1,380 08
Sharpe, Weiss & Co	1,081 16	38,615 12
Wm. S. Halsey & Co	....	2,413 18
Harleigh Coal Co	1,357,13	30,541 00
G. B. Markle & Co	1,917 05	45,831 10
Ebervale Coal Co	1,569 07	29,182 18
Stout Coal Co	483 04	14,671 16
Buck Mountain Coal Co	1,579 06	27,370 01
Coxe Brothers & Co	407 18	11,330 02
Ashburton Coal Co	....	64 06
Highland Coal Co	621 08	15,823 10
Pardee Brothers & Co	72 18	8,293 05
Jeddo Coal Co	417 16	9,490 13
Mount Hall (J. S. S.)	....	....
R. R. Carter	21 19	43 12
Other Shippers	....	938 02
Total Hazleton Region	12,582 02	306,136 07
MAUCH CHUNK REGION.		
Lehigh Coal & Navigation Co	....	....
Summit Mines	....	27 15
Room Run Mines	1,981 11	30,679 19
Other Shippers	....	17 00
Total Mauch Chunk	1,981 11	30,724 14
" Mauch Chunk Region	1,981 11	30,724 14
" Hazleton	12,582 02	306,136 07
" Upper Lehigh	3,994 17	120,961 19
" Wyoming	15,417 12	428,931 00
Grand Total	33,976 02	886,754 00
Corresponding week last year	8,076 01	450,007 00
Increase	25,100_01	436,647 00
Decrease	....	....
Forwarded South from Mauch Chunk by Rail	14,269 03	384,479 15
Delivered on line of L. & S. R. R. ab've M'ch C'k	873 09	61,266 19
Delivered at Coal Port for shipment by canal	18,833 10	441,007 00
Total	32,976 02	886,754 00

Lehigh Canal Coal Trade.

Shipped for the week ending November 14, 1868.

WHERE FROM.	TONS. CWT.	TONS. CWT.
Mauch Chunk Region	12,558 04	345,879 14
Beaver Meadow Region	4,438 04	104,015 02
Mahanoy Region	193 12	3,855 01
Hazleton Region	11,552 12	255,750 18
Upper Lehigh Region	1,035 03	17,391 16
Wyoming Region	6,529 15	176,318 17
Total	36,507 10	903,211 09
Corresponding week last year	30,010 09	936,404 06
Increase	6,497 01	....
Decrease	....	33,192 17

Report of Coal Transported over Lehigh Valley Railroad

For the week ending November 14, 1868, and previously this season, compared with same time last year:

WHERE SHIPPED FROM.	WEEK. Tons. Cwt.	PREVIOUSLY Tons. Cwt.	TOTAL. Tons. Cwt.
Total Mahanoy	14,233 16	418,040 18	432,274 14
Total Hazleton	22,476 08	950,002 06	972,478 14
Total U. Lehigh	758 11	36,839 15	37,598 07
Total B. Meadow	11,758 18	395,861 16	407,615 14
Total Wyoming	5,517 12	259,805 16	265,333 08
Grand total	54,740 05	2,060,550 12	2,115,290 17
Same time last year	46,545 04	1,799,975 17	1,846,521 01
Increase	8,195 01	260,574 15	268,769 16
Decrease	....	....	....
Forwarded east from M. Chunk by r'l	54,740 05	2,060,550 12	2,115,290 17
Delivered at M. C'k and on line of r'd above that point	1,558 13	54,095 02	55,648 15
At Penn Haven for shipm't by canal	11,352 12	174,311 04	185,763 16
At M. Chunk for shipment by canal	4,645 03	101,668 17	106,314 00
Total by rail and canal	72,391 13	2,390,625 15	2,463,017 08
Same time last year	51,599 07	1,915,498 15	1,967,098 02
Increase	20,792 06	475,127 00	495,919 06
Decrease	....	....	....

Cumberland Coal Trade.

By B. & O. RAILROAD.—The shipments over the Baltimore and Ohio Railroad, for the week ending Nov. 14, were as follows:

From Cumberland and Pa. Railroad, via Cumberland	
Consolidation Company	2,509 16
Borden	1,988 09
Midland	559 10
Allegany	68 09
American	8 19
From Eckhart RR.	
C. & I. Co.	2,411 01
From George's Creek, via Piedmont.	
George's C. & I Company	2,236 07
Central	2,745 08
Atlantic	904 16
Savage Mt	161 05
Franklin	364 02
Piedmont	1,803 01
Swanton	698 19
Potomac	805 11
Hampshire	2,649 13
American	535 03
Barton	535 02
Total	20,985 18

By C. & O. CANAL.—There were despatched from this port, during last week, 14,489.05 tons of Coal.

Prices of Coal by the Cargo.

[CORRECTED WEEKLY.]

At New York, Nov. 21, 1868.

Schuylkill R. A., choice	$10 25	Schuylkill Chestnut	$7 50 ....
" Ordinary	10 00	Lehigh W. A. L'p old Co.	8 75 ....
" W. A. Lump	7 50	" Broken	8 50 ....
" Steamboat	8 00	" Egg	9 25 ....
" Broken	8 50	" Stove	10 00 ....
" Egg	9 00	" Chestnut	7 50 ....
" Stove	10 00	Shamokin	7 50 ....

SPECIAL COALS.—DEALERS' QUOTATIONS.

Diam'd Vein R.A., Sch'kill	10 50	Old Co.'s W. A. Lehigh	.... 9 50
Locust Dale W. A., "	10 25	Mt. Pleasant	....
Honey Brook " Lehigh	9 50 9 75	Buck Mountain	7 50 10 00
Harleigh " "	8 25 9 75	Buck Ridge W.A., Sh'kin.	10 50 ....
Spring M'n " "	8 25 9 75	H. Hells, E. F'klin, Lorb.	10 00 10 50
Sugar Creek " "	.... 9 75	New England Red Ash	7 25 7 95
Sugar Loaf " "	....	Wyoming	7 50 ....

Dealers in these Coals may be found in our advertising columns.

At Philadelphia, Nov. 21, 1868.

Lehigh L'p and St'mb't	.... 7 10	Henry Clay, Egg & St	.... 8 00
" Broken and Egg	7 00 7 60	Locust Mount Lump	.... 6 00
" Stove	.... 8 35	" Steamboat	6 00 6 25
" Chestnut	.... 6 60	" Broken	.... 6 75
Schuylkill R. A	7 50 8 00	" Egg	7 25 7 50
" Chestnut	5 50 5 60	" Stove	.... 7 75
" W. A. Lump	5 25 6 00	Lorberry Coal	8 25 8 50
" Broken	6 50 6 75	Shamokin	7 25 7 50
" Egg and Stove	6 90 7 50	Franklin, (Lykens Val.)	8 00 8 50
" Chestnut	5 50 6 00	Broad Top	.... 5 00
Hill & Harris, Egg & St	7 50 7 75		

Scranton Coal at Elizabethport, Nov. 21, 1868.

(Corrected weekly by D. L. & W. R. R. Co.

Lump	6 25	Egg	8 00 ....
Steamer	6 25	Stove	9 50 ....
Grate	6 75	Chestnut	6 50 ....

Prices for Pittston Coal at Newburgh, Nov. 21, 1868.

(Corrected weekly by Penna. Coal Co.)

Lump, per ton, 2240 lbs	....	Egg " "	....
Steamer, " "	....	Stove " "	....
Grate " "	....	Chestnut " "	....
Pea " "	....		

70 cents additional to New York.

Lackawanna at Rondout, Nov. 21, 1868.

Lump	6 25	Egg	8 00 ....
Steamer	6 50	Stove	9 00 ....
Grate	7 00	Chestnut	6 50 ....

65 cents additional to New York.

Lehigh Coal at Elizabethport, Nov. 21, 1868.

Lump	8 25	Chestnut	7 50 ....
Steamboat and Broken	8 25	Stove	9 75 ....
Egg	9 00		

Wilkesbarre Coal at Hoboken, Nov. 21, 1868.

(Corrected by Wilkesbarre Coal & Iron Co.)

Lump	6 50	Egg	8 75 ....
Steamer	7 00	Stove	9 75 ....
Broken	8 25	Chestnut	7 50 ....

At Baltimore, Nov. 21, 1868.

Wholesale prices to trade.		Trevorton R. A	$10 00 10 50
Wilkesbarre by cargo or car load	$8 25 @8 50	By retail, per ton of 2,240 lbs., delivered	8 00 8 50
Pittston and Plymouth	.... 8 25	Georges C'k & Cumberland f. o. b. at Locust Point for shipping	.... 5 00
Shamokin R., or W. Ash	.... 8 50		
Lykens Valley, R. A	8 50 8 75		

At Havre de Grace, Md.

Cargo prices for shipment *south* of Patapsco River, (drawback allowed of 10c.)		Shamokin R. or W. Ash	$.... @8 50
		Lykens Valley R. A	.... 8 50
Wilkesbarre and Pittston		Trevorton R. A	....
W. Ash	$.... @8 00		

At Georgetown, D. C. and Alexandria, Va.

George's Creek and Cumberland f. o. b. @4 75

An advance of twenty cents per ton has recently been allowed boatmen on canal freights from Cumberland, and the price of coal correspondingly advanced.

Prices of Gas Coals.

November 21, 1868.

PROVINCIAL. Duty, $1 25	Coarse. Slack. Gold. Gold.	AMERICAN.	Coarse. Slack. Currency.
Block House	$1 75 @$ 75	Westmoreland Co	$8 50 $8 00
Gowrie	1 75 75	Despard Coal Co	8 50 8 00
Lingan	1 75 75	Penn	8 50 8 00
Sydney	2 13½ 71½	Newburgh Orrel Gas	8 50 8 00
Pictou	2 13½ 1 18½	Delivered in New York.	
Little Glace Bay	1 75 1 00		
Caledonia	1 60 75		

Prices of Foreign Coals.

Duty, $1 25 per ton.

Corrected weekly by PARMELEE BROS., 32 Pine Street, N. Y.

Liverpool Gas Caking	$ 9 50	Liverpool House Cannel	18 00 19 00
" " Cannel	14 00	" " Orrel	16 00 18 00

Per ton 2240 lbs., Ex. ship.

PRICES FROM YARD.

Liverp'l House Orrel, scr'd	$20@23	Liverp'l House Can'l, scr'd	$22 00 25 00

Per ton 2000 lb., delivered.

Coal Freights.

(Corrected Weekly).

Rates of Freight from Newburgh.

RIVER.		EASTERN.	
On "Pittston" Coal, by boats and barges of the Pennsylvania Coal Co., per ton of 2,240 lbs.		Stamford	$1 60
Troy and West Troy	$ 55	Norwalk	1 60
Albany and Greenbush	50	Bridgeport	1 60
Coeymans	45	New Haven	1 60
Coxsackie and Stuyvesant	40	New London	1 80
Hudson and Catskill	35	Norwich	1 90
Saugerties and Barrytown	35	Mystic	1 85
Rhinebeck and Rondout	30	Stonington	1 85
Po'keepsie and New Paltz Land.	25	Sag Harbor	1 85
Fishkill Landing	20	Bristol	1 95
Cold Spring and West Point	30	Newport	1 95
Peekskill	40	Fall River	1 95
Haverstraw	45	Providence	2 00
Sing Sing and Nyack	50	Dighton	2 00
Tarrytown and Piermont	50	Warren	2 00
Yonkers	55	Pawtucket	2 20
The coal must be discharged with all reasonable dispatch, at the expense of the consignee, who shall also pay wharfage on the boat. Boatmen will tend guy while unloading.		New Bedford	2 10
		Boston	3 00
		East Cambridge	3 10
		Salem	3 00
		Newburyport	3 10
		Portsmouth	3 10
		Portland	2 90

Freights on Coal Sea-borne from Port Richmond, Philadelphia.

Nov. 21, 1868.—From Philadelphia and Reading R. R. Wharves, Phila., to

Bangor	3 50	New London	— — 2 70
Boston	— — 3 50	Dover	— — 3 55
Providence	3 00	Cohasset Narrows	— — 3 40
Lynn and discharging	3 50	Cambridgeport	— — 4 00
Portland	3 50	Dorchester	— — 3 30
Fall River	— — 3 00	Fair Haven	— — 2 75
New Bedford	3 00	Gloucester	3 40 3 50
Salem	3 50	Lawrence	— — 3 40
Newport	— — 3 00	Old Cambridge	— — 3 80
East Cambridge	— — 3 30	Saco	— — 4 10
Newberryport	— — 3 75	Roxbury	— — 3 55
Portsmouth	— — 3 75	Salisbury	— — 3 80
Charleston	— — 2 00	Greenport	— — 2 75
Danversport and discharging	3 50	Norwich	— — 2 75
Amesbury	— — 3 90	Harlem	— — 1 45
Beverly	3 50	New Rochelle	1 30 1 40
Charlestown	3 50	Sag Harbor	— — 2 75
Hingham	3 35 3 40	Spuyten Duyvel	— — 1 40
Marblehead	3 60	Williamsburg	— — 1 35
Nantucket	— — 3 50	Jersey City	— — 1 80
Plymouth	— — 3 35	New Brunswick	— — 1 20
Provincetown	— — 3 50	Alexandria	— — 1 40
Washington	— — 2 25	Fredericksburg	— — 2 20
Calais	— — 3 30	Wilmington, Del.	— — 1 00
Machiasport	— — 3 30	Bath	.... 3 70
Hoboken	1 60	East Greenwich	3 ..
Hyannis	3 50	Providence	3 ..
Malden	.. 4	Albany	1 95
Nahant and discharge	3 20	New York	1 50@1 60
Weymouth and towing	3 50	Troy	1 95

From Elizabethport and Port Johnson.

Albany	$1 10@— —	New London	$1 50 — —
Boston	2 60 — —	Newport	1 75 — —
Bridgeport	1 35 — —	New York	65 — —
Fall River	2 00 — —	Norwalk	1 35 — —
Hartford	2 00 — —	Norwich	1 75 — —
Hudson	1 10 — —	Pawtucket and towing	1 85 — —
Wareham	2 20 — —	Portland	2 60
Middletown	1 85 — —	Portsmouth	3 00
New Bedford	2 00 — —	Providence	2 00 — —
Newburyport	3 00 — —	Salem	2 50 — —
New Haven	1 35 — —	Augusta	3 25 — —

Provincial Freights.

TO NEW YORK.		TO BOSTON.	
Sydney	$3 50	Sydney	$2 75
Lingan	....	Lingan	2 25
Cow Bay	4 50	Cow Bay	....
Port Calidonia	4 25	Port Calidonia	3 00
Little Glace Bay	4 00	Little Glace Bay	2 75

Foreign Freights.

New Castle and Ports on Tyne	£18@£15 keel.		
Liverpool	12s. 6d.@15s. ton.		
Australian	9 50@10 00	Lehigh	15 50@16 00
do. Wallsend	10 00 10 50	Liverpool	13 00 ....
Bellingham Bay	11 00	Pittston, ton	14 50 15 00
California	7 00 9 00	Scranton	14 00 15 00
Cumberland cks	30 00 22 00	Scotch	13 00 ....
do bulk	28 00	Vancouver Island	12 50 ....
Chili	10 00		

Rates of Transportation to Tide Water.

[BY RAILROAD.]

To Port Richmond, Philadelphia.

Philadelphia and Reading Railroad, from Schuylkill Haven $2 00

The following are the drawbacks allowed on all coal shipped East of New Brunswick and South of Cape Henry, until further notice.

	Drawback.	Freight.	Nett.
Lump	35	$2 00	$1 65
Steamboat	35	2 00	1 65
Broken	..	2 00	2 00
Egg	..	2 00	2 00
Stove	..	2 25	2 25
Chestnut	..	2 10	2 10

From Port Carbon, 8 cents per ton more.

To Elizabethport.

L. V. Railroad from Mauch Chunk to Easton	$ 1 00
C. R. R., N. J., Easton to Elizabethport	1 55
Shipping Expenses at Elizabethport	25
	2 54
Total	..

To Port Johnson.

L. V. R R	$ 1 04
C. R. R. of N. J	1 63
Shipping Expenses	25
Total	2 92

To Hoboken.

L. V. R.R	1 04
Morris & Essex R.R	1 63
Shipping Expenses	25
Total	$2 92

To Philadelphia.

[BY CANAL.]

From Schuylkill Haven to Port Richmond	$1 00
Freights and tolls by Raritan Canal	2 25
	3 25
No Drawback	
Total	3 25

To New York.

From Mauch Chunk to New Brunswick, by Lehigh, Del. Div. and Del. & Raritan Canal $1 56

Freights through	1 55
Towage	20
	3 31

To New York via Morris Canal.

Lehig Canal	$ 61
Morris "	80
Towage	70
Freight	1 80
Total	3 31

Expenses from Mauch Chunck to Jersey City for Re-shipment.

Lehigh tolls (net)	$ 49
Morris "	49
Freight	1 65
Re-shipping	30
Total	3 31

New York Imports of Metals, etc.

The following will show the imports of metals and metal goods (other than iron, which we publish elsewhere) at this port, for the week ending and including November 13. The quantity is given in packages when not otherwise specified.

	Quantity.	Value.
Metals, &c.:		
Brass goods	4	$888
Bronzes	53	8,019
Cutlery	74	29,097
Gas Fixtures	....	....
Lead, pigs	9,686	49,919
Metal goods	121	14,570
Needles	15	9,721
Old metal	....	198
Platedware	5	1,121
Per. cap	8	3,102
Saddlery	8	1,928
Tin boxes	18,799	83,201
Tin slabs, 1,282 lbs	56,086	11,658
Zinc, lbs	22,505	1,203

The San Francisco Coal Trade.

The San Francisco *Commercial Herald*, Oct. 14, says:

We note sales of Cumberland, to arrive, at $30 per ton, in casks. Imports the first nine months this year exhibit a falling off of 2,000 casks as compared with same period in 1867. The importation of 1,380 tons Australian, ex Dafferin, has passed into the hands of the dealer, for whom it was ordered. An invoice of 3,090 tons English, ex Germania, sold private. The local supply of Mount Diablo is regular, with constant sales of Lump at $7@9 for steamers' use; Screenings of same for factories, $5 per ton. 150 tons English Cannel, ex Garland, sold prior to arrival. Quotations range:

Australian	10 00@10 50	Lehigh	15 50@ ....
do. Wallsend	11 00 11 25	Liverpool	12 50 ....
Bellingham Bay	11 00	Pittston, ton	.... 15 00
California	7 00 9 00	Scranton	.... 15 00
Cumberland cks	30 00	Scotch	12 50 ....
do bulk	28 00	Vancouver Island	12 50 ....
Chili	9 50		

Imports from January 1st to October 1st, 1868:

Anthracite, tons	19,182	English, tons	17,524
Australian, tons	16,542	Lehigh, tons	5,180
Bellingham Bay, tons	6,680	Mount Diablo, tons	72,489
Cumberland, cks	2,623	Nanaimo, tons	19,983
Chili, tons	8,511	Saghalien, tons	204
Coos Bay, tons	8,384		

SAN FRANCISCO STOCK MARKET.

A telegram from San Francisco, dated Nov. 4, quotes:

STOCKS.	Per Sh.		SHARES.	Per Sh.	
Gould & Curry	75@	..	Belcher	....	135
Savage	65	64.75	Imperial	86	91
Chollar Potosi	..	134	Alpha	31	34
Hale & Norcross	51	..	Amador	210	211
Crown Point	38.75	39	Kentuck	..	222
Yellow Jacket	11.35	11.40	Ophir	18	19

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T. P. PEMBERTON is Corresponding and Traveling Editor.

W. B. HARRISON is Editor of the Mechanical Department.

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NEW YORK, SATURDAY, NOVEMBER 21, 1868.

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NOTICE TO CORRESPONDENTS.

In consequence of a new regulation recently adopted by the Postmaster of this city to facilitate the early delivery of mail matter, we have to request our correspondents, in addressing us, to give the number of our post-office box, No. 5,969, in lieu of, or in connection with our business office address.

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SANTO DOMINGO.

The Republic of Santo Domingo has been attracting an unusual degree of attention in the United States during the past year. Since the end of the Spanish occupation, a few years ago, the Government has been gradually, but surely, settling down to a condition of quiet and peace entirely unlike the state of anarchy that we are apt to consider the usual concomitant of a republican form of government in Spanish-America; and, during the last year, it has been making rapid strides in the way of improvement.

The present President, BAEZ, seems to be firmly seated at the head of affairs, and, to judge by the policy that he has adopted, not only willing, but able, to place his little Republic on a respectable footing in the family of nations.

We see no reason why this island should not acquire a real importance commercially. The portion occupied by the Dominican Republic is about two-thirds the area of Pennsylvania—say about 20,000 square miles. It abounds in mines of gold, said by those who are familiar with both countries to be scarcely, if at all, inferior to those of California. OVIEDO states that in the early days of its history, the Government royalty of one-fifth amounted to six millions of dollars annually from the placer mines. These mines are by no means exhausted, and the time must come, sooner or later, when work on them will be resumed. At present, the only mining done is by women, who go out after the rains and wash a little of the sand in the creek beds in wooden bowls, obtaining in a few days gold enough to supply their simple wants for months. Let a few experienced California miners go there, with their improved methods of work, washing down their thousands of tons of gravel by the hydraulic process, where now scarcely pounds are worked, and, if a tithe of the stories be true, we predict a "sensation." Other minerals are also said to exist on the island, in quantities sufficient to render them valuable. The coal mines of Samana have attracted considerable attention; and we are positively assured that Mr. SEWARD has entered into negotiations to secure the bay and peninsula of that name.

The agricultural value of the island is so well known that we need hardly more than refer to it; its capabilities for the production of sugar, tobacco, coffee, cocoa, cotton, etc., are almost unlimited. All of these articles are now produced on a small scale, barely more than sufficient to supply the wants of the people, but enough to show what a little energy and capital can do, if rightly applied.

The entire population is scarcely two hundred thousand and they are represented to be a quiet, lazy, docile race, having but few wants, and those wants almost all supplied by the spontaneous productions of the soil.

The liberal policy of the Government, to which we have referred above, opens a fine field for foreign enterprise, and our own people should not be slow in availing themselves of it. To make the mineral wealth of the island known in a reliable manner, so as to induce foreigners to take an interest in it, a geological commission was authorized a few months ago, and Mr. WM. M. GABB, late of the Geological Survey of California, has been appointed State Geologist. It is expected that this gentleman will start for the scene of his labors very shortly, and we look forward with interest to the accounts of his discoveries, which he has consented to send us from time to time.

In addition to this, a liberal grant has been made to some gentlemen in New York to induce them to run a line of steamers direct between New York, New Orleans and St. Domingo, the capital; thereby bringing the island into direct monthly communication with two ports in the United States.

On account of the innumerable falsehoods that are constantly being published, concerning the internal political affairs of Santo Domingo, a plan ha been decided on by which official bulletins will be sent at stated times to leading papers, so verified as to remove all doubts as to their accuracy and truthfulness.

From the statement of a correspondent of the *Herald*, we extract the following account of the plan: "On the first and third Saturdays of each month, the Secretary of the Interior will present a brief statement to the council of ministers, by whom it will be criticised and amended. It will then be submitted to the consular corps, who will be invited to make any additions or corrections which may suggest themselves. They will also be requested to send on their individual opinions with the press circular."

From this, it seems to us, that all fears of disturbances must be entirely removed, or the Government would not be willing to give so great a publicity to the news. We sincerely trust that the peace and prosperity which they anticipate may continue; that our little neighbor may be on the eve of a new career, and that success may crown her laudable endeavor.

MINING CODES.

History gives us a partial explanation of the causes which have made Germany, ever since the Middle Ages, the school of the world in the Art of Mining. In that country, and we might almost say in that country alone, has mining been pursued for centuries, comparatively undisturbed by wars and conquests, and continually fostered by the State, and assisted by the progressive science of each succeeding age. In laws, in histories, in her miners' dialect, and, above all, in the not yet obliterated traces of ancient operations, Germany presents to us a complete and instructive picture of the mining industry of the past, while her numerous and well-appointed schools, with their armies of accomplished graduates, her local populations of (so to speak) hereditary miners, her wise and elaborate system of legislation for mines, and her multifarious manufactures, based upon mining, keep her still the foremost nation of Christendom, if not in every branch of this industry, or in all the steps of invention and progress which attend it, yet at least in its general stability and settled economy, and in its harmonious relations to other forms of organized labor, as a recognized element in the prosperity of the State.

Spain had once an excellent mining code; but it was based upon an incomplete science, and upon institutions of labor which have passed or are passing away; and the Spanish code (familiar to us as the present system of Mexico) has stood still while the world advanced. England has a vast and productive mining industry; and English statesmen are not slow to recognize its importance as the foundation of the commercial power of that country. But the intricacies and local complications of English law are proverbial, and the mining codes are no exception to the rule. We can probably copy little from England, save those principles of common law which we have already. France has the most modern system (if we except our own, which is as yet scarcely worthy of the name); for the clean sweep of the Code Napoleon did not spare the ancient regulations which fettered the mining industry of that nation. But France has unfortunately few metal mines, and her experience can afford us, therefore, but little light. It is to Germany that we must look for our best models of legislation, as of applied science. No popular notion is more erroneous than that which ascribes to the Germans, as a people, learning without practical skill and tact; and nothing can more strikingly illustrate the error of this impression than the manner in which the Germans have brought to bear upon the art of mining the sciences of chemistry, mechanics, mathematics, law and political economy.

It is not, however, by closely imitating the course of any nation that we can successfully establish an American system. The one thing to be studied in all nations is the degree of wisdom with which they have adapted their legislation to their circumstances; and it should always be borne in mind that we occupy a position widely different from that of a State, bound by precedents and privileges, and at the same time, possessed of greater central power than democratic governments can or should ever acquire Our American system cannot be a delicately balanced and nicely administered one; the hoofs of each new party riding into power would trample such workmanship to pieces. It must be broad, simple and, as far as possible, automatic. Our institutions are not like philosophical apparatus, closely watched and often adjusted; they are rather like the ocean, lashed by storms and swayed by mighty tides, yet keeping its own level after all, and asking no man to supply its deficiency or drain its surplus.

It is no small task to apply the teachings of history and the examples of successful states to these new conditions; yet it were folly to forget those teachings, and, blindly disdaining all examples, to blunder forward in a path where every false step wastes the energies and delays the progress of a great people. Impressed by such considerations, the Commissioner for the Pacific States will attempt, in his forthcoming report, to present a summary of the history of mining, and especially of mining legislation, and to draw therefrom the principles which should guide the action of American law-makers.

NITRO-GLYCERINE IN A NEW PLACE.

In a pamphlet containing certificates as to the usefulness of a new apparatus for preventing incrustation as well as corrosion in boilers, which is said to be also a safety guard against explosives, we read the following:

"Water containing vegetable oils and animal fats, under high pressure of steam, the fat and oils will act chemically on the steam, forming fatty acids and glycerine. The latter, combined with oyxgen and nitrogen, makes nitro-glycerine, which expands by explosion 10,384 times its original measurement (while gunpowder expands only 800 times). This leads us to the conclusion that a steam boiler, using impure water, containing fats, oils, oxygen and nitrogen, under high pressure of steam, may produce nitro-glycerine—a very unsafe substance under any circumstances to have in a steam boiler. Hence, these unaccountable steamboat boiler explosions, which usually occur in the spring of the year, when the rivers are full of surface water, containing organic matter, vegetable oils, nitre, etc., may be accounted for, and the cause removed on scientific principles."

This statement is startling enough to those timid people who tremble at the very name of nitro-glycerine; and we can scarcely forgive the author of the pamphlet alluded to for having let loose such a bug-bear on the community. The apparatus he advocates is certified to by respectable parties as effectual in preventing incrustation and corrosion; but nobody certifies that it will prevent the formation of nitro-glycerine. On the contrary, there is quite as much reason to believe that it will promote, as that it will prevent, such a disastrous occurrence. The horrible nightmare thus conjured up is, therefore, not excusable as a "running mate" to the author's hobby.

Fortunately, the whole statement above quoted is fallacious. It is true that steam acts chemically on fats, decomposing them into fatty acids and glycerine, which latter dissolves in the condensed steam or water. This fact was already known in 1823, when, in a steam boiler of PERKINS, in England, which worked under very high pressure, and returned the condensed steam to the boiler

the lubricating fats and oils used in the cylinder were found to be changed, and to consist, according to Faraday's analysis, of fatty acids. This action of steam or hot water upon fats is one of the regular manufacturing methods for their decomposition, in making soap and candles. In all low pressure engines, more fats and oils are introduced into the boiler with the condensed steam than any impure natural water contains. The presence of glycerine in the boiler is, therefore, not to be avoided by using pure water.

That the glycerine thus introduced into the water of the boiler, may, however, in this diluted state, under high temperature and pressure, produce nitro-glycerine, is a gratuitous fancy, contrary to the positive experience of every one who has manufactured this explosive compound. To make nitro-glycerine, it is not only necessary to use very condensed glycerine, but also very strong nitric acid; and the presence of a small quantity of water will prevent the desired reaction. Heat is also preventive, not promotive, of it. We have then, as requisite for the formation of nitro-glycerine, strong glycerine, strong nitric acid, no water, little heat; while the case before us offers weak glycerine, no nitric acid at all, water in abundance and a high temperature! Few men are ingenious enough to invent a hypothesis more curiously and beautifully at variance with all the known facts than is this nitro-glycerine-boiler-explosion theory. Fortunately, engineers are, as a class, neither ignorant nor over-credulous; and we think nobody will be frightened with such nonsense.

The apparatus we have referred to (without mentioning names), is said to be a good anti-incrustator. We are not discussing that point at present. So far as it claims, however, to be superior to other contrivances, because it prevents the formation of nitro-glycerine in boilers, it is mere quackery. If the inventor has made a good apparatus, he has done it (like not a few before him), in spite of any wild and incorrect notions of science.

WILSON'S STEAM STAMP-MILL.

In another column will be found a letter from Mr. Furman R. Wilson, announcing the successful trial, by a run of nearly six months, of the steam stamp-mill which bears his name. A private letter from the same gentleman at the same time, declares that the actual achievement of the mill was far beyond the figures he gives for publication. Our readers know that we have on several occasions spoken favorably of the Wilson mill; and we are not surprised to hear that it has answered the expectations of its friends. What we wish to say at the present time, however, is that we consider it a great pity that the company, in "thoroughly testing" this machine, permitted the superintendent to "keep no account of the number of tons crushed." What is the particular use of a test, if all the elements of exactness are left out of it! If Mr. Wilson can tell us from the record of six months' running how many tons of quartz, and how many of slate or softer rock, are crushed by his machine per day, per cord of wood, per hundred weight of stamp, per horse-power and per dollar, his "test" amounts to something. If not, it may still be satisfactory to him; but it must all be done over again, more wisely and exactly, before it will have its due effect on engineers. Mr. Wilson is a practical millman, and knows the value of such figures as will enable people to compare one crushing machine with another. We hope he will favor the public with more precise data on these points. What we have from him so far is very well indeed, as far as it goes, but we wish it went further. Let the superintendent at least "keep account of the tons" next time.

Formation of Quartz Crystals in Idaho.

The Idaho *Statesman* says:

"A few weeks ago one of the owners in the Idaho mine at Rocky Bar related to us that some months since they had occasion to explore one of the old galleries which had been unused for about two years, when, hanging upon and adhering to the underside of one of the timbers, as also upon the wall of the mine, was found a quantity of quartz crystals in a state of formation by the dripping of water that percolated through the granite walls. The crystals were soft, and through the carelessness of the workmen in handling them, were unfortunately destroyed."

This is not impossible; but the facts as narrated render it extremely probable that the workman alluded to mistook crystals or stalactites of some other mineral, such as carbonate of lime, for quartz.

The American Institute Lectures.

The course of twelve lectures, announced in our advertising columns by the American Institute, is one of the most promising ever arranged in New York. Every name in the list is distinguished, not only for scientific attainments, but also for the power of communicating the truths of science in a forcible and agreeable manner. President Barnard, whose lecture on the Microscope will be given on Wednesday, November 25, worthily stands at the head.

Dussauce.

We regret to learn of a serious accident which happened to our respected contributor, Professor Dussauce, a day or two ago. A severe fall inflicted painful, but not dangerous injuries upon him. His numerous friends will sympathize with him in his suffering, and rejoice to hear of his recovery.

Errata.

In the "composition" of the letters of Mr. Harden on Ventilation of Coal Mines, some errors have unavoidably occurred, owing to the impossibility of returning the proofs to the author for his revision. As these have generally been unimportant, they have usually been passed by in silence. But two, at least, require correction, since they might mislead students, if not experienced men.

1. On page 226 of this volume read "1.5 horse-power," etc., instead of "15 horse-power per pound of coal."

2. On page 307 (last week's letter) instead of "1 lb. coal per minute," read "4 lbs." The latter error would give to the credit of the steam jet 23,570 feet of air per pound of coal, instead of 5,892 feet—a serious difference.

ANSWERS TO CORRESPONDENTS.

P. P., of Conn.—The magnifying power of a lens depends not on its size, but on its curvature; and as small lenses or even glass globes, as small as shot, have necessarily a stronger curvature than larger ones, their magnifying power is the greatest. The heating power of a lens, however, when used as a burning glass with sunlight, does depend on the size. A lens of 2 or 3 inches diameter will easily ignite paper and other combustible substances; one of 10 or 12 inches will melt lead, antiomony and, perhaps, even copper, silver and gold; and one of three feet diameter, as lately made by Mr. Parker, of London, will not only fuse the most refractory metals, such as platinum, iridum, chromium, etc., but even dissipate them into vapor, and melt and vitrify all silicates.

N. Hammond, of Philadlphia.—A preventive of forgery by the anastatic process may be found in a paper prepared with a pulp containing phosphate of copper. This paper is slightly blue or bluish-green. To illustrate the principle, a sheet of paper or blank check is moistened with dilute nitric acid, containing a little solution of copper, and laid upon the zinc plate, as in the ordinary process of anastatic printing. It undergoes an immediate change; the zinc precipitates the copper, and if the check and zinc-plate are passed under the roller, the paper is blackened by the precipitated copper, and adheres so firmly to the zinc plate, that it cannot be removed without destroying it. Hence, supposing a forger should attempt to take an anastatic copy of a note printed on this prepared paper, he would be punished at once by the loss of his property.

S. B., of Cal.—The solar microscope is not well adapted for the investigation of mineral substances. It is more appropriate to investigation in the vegetable and animal kingdoms, since it requires transparent objects, which minerals generally are not. A common microscope, or even a simple magnifying-glass, or so-called pocket microscope, is in the end the best for all practical purposes; however, in case you intend to lecture, or exhibit large mineral specimens to an audience, the so-called megascope may be of service to you. It consists of such a modification of the solar microscope, that opaque objects are illuminated by reflected light in front, and the image of the illuminated side, shown on a white screen, by means of appropriate magnifying lenses.

B. K., of Colorado, asks; "What does Greek fire consist of?" The Greek fire of the ancients was evidently nothing but pitch, tar, naphtha, etc., a variable compound about as dangerous as our benzine, gasoline, sulphur, ether, camphene, burning-fluid, etc. The so-called Greek fire of the present day is a solution of phosphorus and bisulphide of carbon. When an easily-combustible substance is moistened with this solution it will take fire when it becomes dry, that is, in the course of one minute, as the bisulphide of carbon is very volatile. If the substance to be fired is at the same time porous, so that it presents a large amount of surface, the effect is much more certain.

G. N., of Va.—The so-called chrysaminic acid, which is now so extensively used for dyeing purposes in Germany, is an acid made from aloes, by treating this vegetable gum with 6 times its weight of nitric acid, and evaporating slowly to dryness, in order to drive off all excess of nitric acid. It is used to dye different very peculiar shades of gray, brown, blue, green, pink, etc. You will find a full account of this in our new paper: The Manufacturer and Builder, to which you are referred.

G. A. D., of N. Y.—If your eyes have different focal power, as appears to be the case from your statements, it is not only harmless, but absolutely necessary to use different glasses in your spectacles, each one adapted to the eye for which it is used. Nothing is worse for the eyesight than to use glasses which strain the eye in the least. Let each glass be exactly suited to each eye; this is the common practice among good oculists, and ought to be among all.

J. S. Carter, of Penn.—One of the greatest sources of mischief to the internal molecular structure of a bar of iron is the cold swaging or hammering which is given to the iron in order to give it a handsome appearance. This is probably the cause of the defect that you observe.

Chemist, of Ohio.—You can produce quite a quantity of crystallized chloride of lead in cubes, without any other product, by surrounding a piece of galena with a platinum wire and placing them in a saturated solution of common salt and sulphate of copper, diluted with three volumes of water.

S. M., of Pa.—The best oil for your belts is decidedly castor oil; it redeems old leather better than any other oils, and increases the adhesive power of the belt to the pully; so that a belt of 4 inches width, thus treated, will adhere better than a dry belt of 6 inches.

S. M. C., of Phil.—You will find the explanation of your questions about the production of heat by friction in an article on the relation between heat and power in a former number of the American Journal of Mining.

E. W. K., of Mass.—Buy a text-book on elementary chemistry; you will find in it the complete answer to your questions, and to a great many others you may be induced to ask.

NEW PUBLICATIONS.

General Problems in the Linear Perspective of Form Shadow and Reflection; *or the Scenographic Projections of Descriptives Geometry*, by S. Edward Warren, C. E., Professor of Descriptive Geometry, etc., in the Rensselaer Polytechnic Institute, etc., etc. New York; John Wiley & Son, Astor Place. 1868.

We have not had time to examine this book as closely as we desired, nor to compare it with others upon the same subject, or with Prof. Warren's own more elementary treatises on perspective. We will only say at present, therefore, that this work seems to be scientific in method and complete in execution. The very numerous and beautiful plates with which it is illustrated are themselves a system of instruction. The style of the publication is worthy of high praise. An artist need not scorn these fair pages and delicate diagrams; and that reminds us to say that we wish our artists would more universally recognize the necessity of severe study of the laws of reflection, shadow and perspective. But the study is equally valuable as a part of necessary mathematical discipline even to those who are not artists. Prof. Warren's book is another proof that old Rensselaer is not dead, nor asleep; and that her professors are sensitive to the necessities of the scholarship of the present.

The American Journal of Science and Arts for November contains a variety of interesting matter. Prof. Gibbs on Uric Acid, C. Greville Williams on the Artificial Formation of Organic Substances, and Prof. Barker's resume of recent work in the field of physiological chemistry, will be valuable to organic chemists. Alfred Tyler's paper on the Amiens Gravel, corroborating the opinion of Prof. Andrews, published in Silliman's, last March, and discussed in this Journal at that time (see Vol. V, p. 200); the continuation of Capt. Koschkull's Notes on the Caucasus, T. Sterry Hunt's Notes on the Geology of Southern Ontario, and Prof. Marsh's palæontological papers will attract geologists; while microscopists as well as astronomers will find their specialities represented in the articles of W. S. Sullivant on Stodder's paper in the *American Naturalist* concerning Nobert's Test-plate and Modern Microscopes, of J. J. Woodward on the Nineteen-band Test-plate of Nobert, of Prof. Newcomb on Hansen's Theory of the Physical Constitution of the Moon, and of Prof. Watson on Discoveries of New Planets.

Moore's Rural New-Yorker is a paper we have always read with pleasure. In its vigorous old age—for a score of years is certainly something like old age—it has made a change of base; and will hereafter be published simultaneously in this city and in Rochester, its headquarters hitherto. Rural New-Yorkers need no exhortation from us to patronize a sheet which bears their name and has long been their favorite representative organ; but perhaps urban and suburban New Yorkers might with profit peruse something of this sort, free from the fever-heat of politics and the monotonous tragical farce of police reports, and full instead of the sound of brooks and the odor of new-mown hay.

The First National Chemical Works of New Jersey is an enterprise based on certain discoveries in the distillation of resinous woods. The pamphlet of the company gives the following as the product of the distillation by this process of fifty cords of pitch pine, in about ten days and nights, viz: 991 gallons of refined spirits of turpentine; 1,297 gallons of oil of turpentine; 2,220 gallons of tar; 1,184 gallons of pitch; 6,968 of pyroligneous acid; 1,225 barrels of charcoal; and 350,000 feet (estimated) of illuminating gas. The total profit is estimated at about twelve hundred dollars. Works with the capacity of ten cords daily, such as are now erecting (the old ones having been destroyed by fire in April) are expected to earn over $90,000 per year.

The Globe Gold and Silver Mining Co., of Monitor, Alpine Co., California, issues a handsome prospectus of 32 pages, containing information as to the property of the company, together with a compilation of "Facts about Gold and Silver Mines and Mining in California and Nevada." Those portions of the pamphlet which refer to the property of the company itself are extremely favorable to the enterprise. They comprise a Geological and Mineralogical Report by Mr. N. Graff, a Topographical Report by Mr. B. Pilkington, and extracts from the letters of prominent individuals and newspapers. J. Winchester is president of the Globe Company. Office 36 John street, N. Y.

The Hyko Silver Mining Company publishes two reports, one by Mr. Jas. D. Lehmer, and the other by Mr. A. F. White, State Geologist of Nevada. These reports are not exactly discouraging, nor are they very definite as to the prospects of the company. The general spirit seems to be that of perseverance and hope. We wish the company's energy and confidence may be rewarded, as it is on one or two enterprises of this kind that the fate of the whole Pahranagat district is now depending.

Mr. Benjamin Smith Lyman, of Philadelphia, favors us with a Report on the Painter Tract, Cornellsville, Pa., accompanied with a geological and topographical map. The report is clear and practical, and the map is a specimen of fine workmanship. The members of the American Association who were present at the Burlington meeting, in 1867, will remember what admiration was excited by Mr. Lyman's topographical maps, illustrating his paper on certain Virginia iron-beds.

Mr. Alfred DuBois, who has had a good deal of experience with Monnier's method for treating sulphurets, sends us his report on that subject, made for the Monnier Metallurgical Company of Colorado. We shall take occasion to refer to this matter at some future time.

Original Papers.

[FURNISHED THE AMERICAN JOURNAL OF MINING BY THE HON. HUGH MC CULLOCH, SECRETARY OF THE TREASURY.]

OFFICIAL REPORT OF HON. J. ROSS SNOWDEN, UPON THE MINERAL RESOURCES OF COLORADO.—NO. V.

The following is the

Report of Mr. John T. Herrick,

appended to the general report of Commissioner Snowden:

Office of Georgetown Silver Smelting Co.,
Georgetown, Colorado, July 23, 1868.

1st. Reduction of Ores.—All ores which do not contain over 12 per cent. of gangue or rock, are pulverized in a Dodge Crusher, and taken direct to the roasting furnace. Ores containing over 12 per cent. of gangue or rock, are taken from the crusher to the jigs and buddle, where the rock is washed entirely out, and the clean or dressed ore is taken to the roasting furnace. All ores are thoroughly calcined or roasted before smelting, to eliminate the sulphur. After washing, they are fluxed, according to their contents, with iron, lime, charcoal, and, where the percentage of lead is below 50, with litharge or lean lead ores. All are so mixed that the lead *regulus* from the furnace will not contain more than 500 ounces of silver per ton. The regulus is run into bars or pigs, weighing from 15 to 20 pounds each, and taken to the refining furnace, where the lead is oxidized by a blast, and the silver refined to from 995 to 998-1000's fine. The process of reduction is the most approved plan of English lead smelting.

2D.—NAMES OF LODES FROM WHICH ORES HAVE BEEN BROUGHT TO WORKS FOR TREATMENT.

NAME OF LODE.	LOCATION.	WIDTH OF PAY VEIN.	YIELD PER TON.
Winnebago.	Burrell Mt.	6 to 10 inches.	$10 80 Coin
Munsell.	"	"	550 to $1060
Magnet.	Alpine "	1 foot.	265
Hise.	Sherman "	10 inches.	525
Terrible.	Brown "	14 to 30 inches.	443 to 1024
Brown.	"	About 1 foot.	320
J. J. Roe.	"	18 inches.	516
Lilly.	"	12 inches.	500
Hercules.	"	8 inches.	2095
Robt. Emmett.	Sherman "	6 inches.	275
Anglo-Saxon.	Alpine "	2 feet 4 inches.	875

3D.—GENERAL ASSAY VALUE OF ORES REDUCED FROM JULY, 1867, TO JULY, 1868.

The general assay value is from 10 to 15 per cent. above the yield per ton, given above. Frequently selected specimens are picked out from the ore and put in the crushing-room, which assay very high—owing to the presence in small quantities of the fine ores of silver—such as ruby and brittle silver. The value of such specimens range from $3,000 to $18,000 per ton.

The Brown ore yields many specimens of this character. The Anglo-Saxon Lode furnished some pieces of silver glance, assaying as high as $23,000 per ton. These assays, however, furnish no standard from which to judge of the value of ores—beyond establishing their character as true silver ores.

4TH.—ASSAYS OF OTHER ORES BROUGHT TO THE WORKS FOR SINGLE ASSAY.

NAME OF LODE.	LOCATION.	AMOUNT OF ASSAY.	CHARACTER OF ORE.
W. H. Gray.	Brown Mt.	$267 00	Argentiferous Galena
S. Ward.	Sherman "	1,122 75	Argen. & Sulph. Silv
Elijah Hise.	" "	1,342 57	Argentiferous Galena
Summit.	Alpine "	1,598 53	Sternbergite.
Anglo-Saxon.	" "	3,462 75	Sulphuret of Silver
Bethany.	" "	8,182 02	"
Bethany.	" "	22,137 30	*Silver Glance.*
Nuckolls.	Republican "	716 85	Sulphuret of Silver
Hise.	Sherman "	1,685 70	Stephanite
Munsell.	Burrell "	1,236 19	Argentiferous Galena
Terrible.	Brown "	1,701 10	"
Winnebago.	Burrell "	1,963 13	"
Winnebago.	" "	2,546 00	Brittle Silver
Lilly.	Brown "	1,716 00	Argentiferous Galena
J. J. Roe.	" "	1,536 60	"
Magnet.	Alpine "	270 60	Galena and Sulphuret
Equator.	Burrell "	1,041 20	Argentiferous Galena
Hercules.	Brown "	2,095 60	"
Brown.	" "	750 00	"
U. S. Coin.	" "	578 00	"

The most of these assays were made from fine specimens of ore, selected for richness.

5TH.—GENERAL PROSPECT, OR ESTIMATE, OF OPERATIONS FOR THE PRESENT FISCAL YEAR, COMMENCING JULY 1, 1868.

It is very difficult to make any accurate or exact approximate estimates for the future in a country where the march of improvement is so rapid. It is proposed to extend the capacity of these works as rapidly as the development of the mines will warrant, and to afford a good market for ores in the immediate neighborhood of their production.

6TH.—PRESENT ACTIVITY OF MINING IN GRIFFITH AND ARGENTINE DISTRICTS.

The progress of development is nearly or entirely limited to the means of the miners themselves, very little capital as yet having been attracted to the silver region. The amount of work already accomplished is, however, very satisfactory. It is determined that a large proportion of these mines will pay their own way, and for the most part the expenditure for development is limited to the amount realized from small quantities of ores taken from the prism of shafts or adits.

No tunnels of any magnitude have been run, for the reason that the means to carry on such work are not at present at the command of the parties interested. A company has, however, been organized for the purpose of running a tunnel under Burrell Mountain, crossing a large number of well defined and rich silver lodes—among others, the Winnebago, Equator, Compass and Square; the line of opening penetrating the above-named lodes about 600 feet under ground.

The prospects for mining activity for the coming year are extremely flattering.

7th. The silver region of Colorado is located upon either side of the great divide, between the Atlantic and Pacific Oceans, and is consequently very nearly, if not quite, the highest general altitude on the continent. The general course of the veins is determined to be at a very nearly uniform and extremely well marked angle, with the general stratification of the mountain system. The veins themselves contain every known description of true silver ore; their character, consequently, is unmistakeable, and every foot of development serves only as a demonstration of a geometric theorem, and uncovers to the view what experience in similar mines in other portions of the world has taught the miner to seek for.

JOHN T. HERRICK.

☞ A slate-pencil manufactury is about to be established at Slatington, Pa. There is now but one such manufactory in the United States.

[TRANSLATED FOR THE AMERICAN JOURNAL OF MINING, FROM *La Estrella de Irazu*, COSTA RICA.]

MINERAL RESOURCES OF COSTA RICA.

Many intelligent travelers visiting our country, and some natives as well as foreigners residing here, who both by their experience and their information are entitled to a voice on the subject, class this portion of Central America among the most highly blest districts of the world, by virtue of the immense mineral treasures therein imbedded, and augur for our country a great future, based upon the development of her mineral wealth. We, who for years have carefully observed this kind of development, do not hesitate to agree with views that give promise of such cheering results in a near future, and to chronicle with satisfaction, that the Government, at each session of Congress, endeavors to introduce laws favorable to that important branch of our national industry. This has been especially done, in the decree No. 14 of July 28, which, although of a provisional character, still contains clauses of indubitable utility. It is very desirable that the friends of progress and of the good name of our country should furnish us with precise data on the condition of our mines, their yield, etc., etc., in order that the development of that class of industry among us may be better known and appreciated outside of our Republic. As a beginning we propose to speak of the mines of the "Payres Company," the gross yield of which has been as follows, viz:

During the winter (i. e. rainy season) of	1865.....	$11,490	gold
" "	" 1866.....	13,163	"
" "	" 1867.....	39,795	"
" " (up to June)	" 1868.....	15,525	"
Total.....		79,973	"

This auriferous lode, which since 1865 has been worked according to scientific principles, is paying since May last a monthly dividend of $1,200, though more than $80,000 had been invested in it since work was begun in machinery, railroads, importation of German miners, etc., etc. This result is highly satisfactory, and we doubt not that all mining companies working with the same degree of intelligence, energy and economy, would be able to reap like benefits.

Scientific Meetings.

POLYTECHNIC BRANCH OF THE AMERICAN INSTITUTE.

EARTHQUAKES.

The regular weekly meeting of the Polytechnic Branch of the American Institute was held on Thursday evening, Nov. 19, Professor TILLMAN in the chair.

Dr. J. J. EDWARDS took the stand and read a paper on "earthquakes." He argued that the earth is kept in its parts by the reciprocation of attraction and repulsion; that the earth is not a molten mass in its interior, although it may once have been; that the heat of the earth is not sufficient to account for earthquakes, nor for the phenomena which are necessary for the vegetable and animal life on its surface; that the laws which govern the sun and the planets are universal laws, and that to know the laws of one is to know approximately the laws of the whole, and that the differences are only of degree and variety, and not fundamental; that a meteor or ærolite is a planet. and, consequently, its component parts indicate the structure of the earth; that the sun is the fountain of our motion and life; that heat, light and electricity are solar emanations, directly or indirectly; that the new scientific laws of the corelations of forces and the conservation of forces are the key to the cause of earthquakes; that the earth stores up any superabundance of heat or light in their corelation to electricity, and that earthquakes are caused by the discharge of this superabundant electricity in its endeavors to equalize itself over the earth or to discharge itself into the surrounding atmosphere under the same laws as the Leyden jar. The lecturer concluded by stating that inasmuch as the greater part of the paper was composed of quotations from others he was not responsible for them, though he heartily concurred in them, believing electricity to be the cause of earthquakes. During the course of the lecture the speaker was interrupted by several of the audience, who considered his views on the matter fallacious.

A discussion ensued, in which Dr. PARMELE and Prof. VAN DER WEYDE took part; the latter gave his opinion of the various scientific statements embodied in Dr. EDWARDS' paper, and stated that earthquakes were explosions of steam formed from water which had percolated through to the heated portions beneath the earth's surface. Prof. SILLIMAN was stated to be of the same opinion. The hour of closing arrived before the Association came to a unanimous opinion on the subject, and the meeting adjourned for two weeks

Correspondence.

[To insure insertion of correspondence in our columns, the full name and address of the writer must be given.]

Mica in Virginia.

HANOVER CO. VA., Oct. 28th, 1868.

EDITOR AMERICAN JOURNAL OF MINING:

I write to give your readers some account of a new feature of mining enterprise, which has been introduced in our county. This is the commencement of operations for the mining of mica.

Mica has been utilized in various ways, but it was reserved for an enterprising gentleman of Albany to solve the problem on a grand scale. He invented a parlor stove, which he called the "Morning Glory." One of the principal attractions of this stove is, the possession of mica windows, permitting the flame within to be visible. There are two or three firms now engaged in the manufacture of these stoves, and as they turn out several hundred thousand in a year, an immense quantity of mica is needed to supply them.

If I am correctly informed, most of the mica used had to be imported; the greater part of it coming from Siberia. The only mine existing in the United States is in New Hampshire, where the mica is blasted from granite. Attempts were made to procure mica from Canada, but all thus procured would not stand the heat of the stove, but became opaque and white.

The seekers for mica have turned their attention to the mica schist belt of country runing through Virginia, and parallel to the Alleghany range. One of the employees of a firm in Erie, Pa., which is engaged in manufacturing these stoves, was a member of the "Army of the Potomac," in the late war, and in the many marchings and counter-marchings of the troops, he built his camp-fire right upon a bed of mica, in the vicinity of the United States Ford, Stafford Co., Va.

This fact induced the Erie firm to send him to Stafford Co.; not finding the spot, he followed the mica schist formations across the State into Hanover Co. Here, surface indications were abandoned, and by the aid of the country people, he soon found sufficient indications to induce him to make an extensive cutting. In a small open cut, 1,400 lbs. were taken out, and shipped to the firm in Erie. The result has been, that the Erie firm bought the lands on which the mica was found, and is now preparing to mine extensively, for the purpose of raising mica for the use of its manufactory.

Good, sound mica, which will cut up in pieces, 3×4, 3×5, 3×6, 4×5, 4×6 inches, commands from $200 to $600 per pound, according to the degree of transperency. Soda mica burns white, and will not do. Potash mica, such as that found here, stands the heat well.

The prevalent rock of this region in which the mine exists, is gneiss, with occasional beds of mica schist. In the immediate vicinity of the mine, the gneiss is full of nodules of garnet, and contains also feldspar (orthoclan) beautifully crystallized, and transparent. The rock also contains much kyanite. All these minerals are well crystallized.

Although much of the mica raised is worthless, from being decayed, and from confused crystallization, yet the company has a good prospect of obtaining a large supply, sufficiently sound, for the rock in which the mica is now found, is totally decomposed from the action of the air and moisture. At a greater depth the rock is doubtless sounder, and the mica will be procured in better condition. The matrix of the mica is a porphyritic gneiss, in which the porphyritic character is exhibited on such a gigantic scale, that masses of quartz and felspar 6 inches, and plates of mica 12 inches in length occur.

F.

Special Notices.

Fisk & Hatch.

THE CENTRAL PACIFIC RAILROAD, connecting San Francisco and the Pacific coast with the Atlantic lines, now nearly completed, and doing a large and remunerative business, must speedily become one of the most important and valuable lines of through traffic on the continent.

The first mortgage bonds issued thereon, having a lien superior to that of the United States, are now widely known and esteemed as among the safest, best, and most profitable corporate securities for investment. A limited quantity will be sold at 103 and accrued interest, in currency. Principal and six per cent. interest payable in gold. Government bonds received in exchange at full market rates, allowing the difference in cash.

FISK & HATCH,
Bankers &c., 5 Nassau street, New York.

Mrs. Secretary McCulloch's Report.

NO DECLINE IN HOUSEHOLD TREASURES.

Ten years ago I purchased a Wheeler & Wilson Sewing Machine, and have had it in constant use in my family since. We used it during the war to make clothing for our volunteers in the service and for our hospitals, and this work was very heavy, being coarse woollen and cotton fabrics. It is still in good working order, nothing having been broken but a few needles.

You are welcome to use my name in your recommendations.

Mrs. HUGH McCULLOCH,
Wife of Secretary U. S. Treasury, Washington.
To Messrs. Wheeler & Wilson.

☞ Attention is called to the advertisement of J. C. HOADLEY & Co., in our paper. Their portable steam engines are used in all parts of the country, and are highly recommended by those who have tested them.

☞ A very curious discovery has recently been made by M. Auguste Bertsch, and turned to practical account by M. Kuhlmann, the celebrated chemist. Who is there that has not, during cold winters, stopped to admire the beautifully symmetrical and yet fantastic figures of leaves and flowers depicted on the window panes of a well-heated room, the air of which is charged with aqueous particles? M. Bertsch has found that Epsom salts (sulphate of magnesia) dissolved in beer, together with a small quantity of dextrine (artificial gum) and in this state applied to a pane of glass with a sponge or brush, will, on crystallizing, produce the identical designs above alluded to, hitherto considered peculiar to water; with this improvement however, that the liquid may receive any color whatever, at the option of the operator. The ephemeral productions of frost may thus be easily perpetuated; but M. Kuhlmann, on being apprised of the fact, conceived the idea of going a step further, and transferring those fairy-like creations to stuffs and paper. For this purpose he first got the crystallizations on sheets of iron, on which he afterwards laid one of lead. By means of a powerful hydraulic press the minutest details of the figures in question were durably imprinted on the soft metal, and a copy of them in relief was then obtained by galvanoplastics. But here another difficulty arose. In the impression of cotton stuffs the pattern must be continuous; whereas in M. Kuhlmann's plates the lines at one end would clearly not coincide with those at the other, so that disagreeable interruptions would be caused in the printed designs. This obstacle, however, has been overcove in a most ingenious manner by effecting the crystalisation on the cylindrical surface of a roller. A slight rotatory motion to it will prevent the liquid from accumulating at any particular point before it has evaporated.—*Galignani.*

☞ It is proposed to macadamize the roads of Pennsylvania with slag.

PUBLICATIONS.

THE LARGEST, CHEAPEST AND BEST!

ELECTION IS OVER,
PEACE PREVAILS,
PROSPERITY ABOUNDS,

AND NOW IS THE TIME TO SUBSCRIBE FOR

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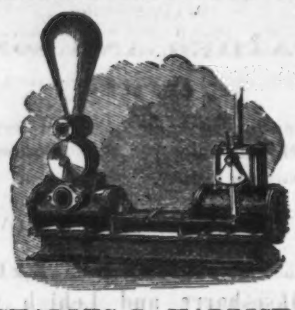

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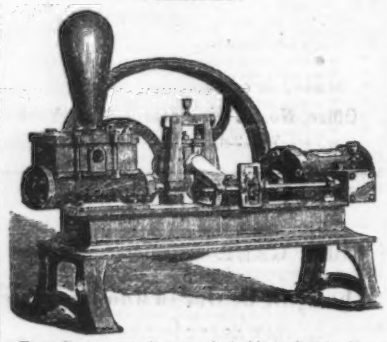

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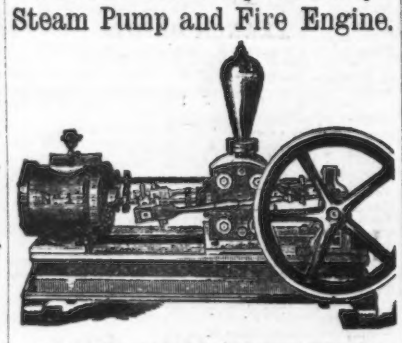

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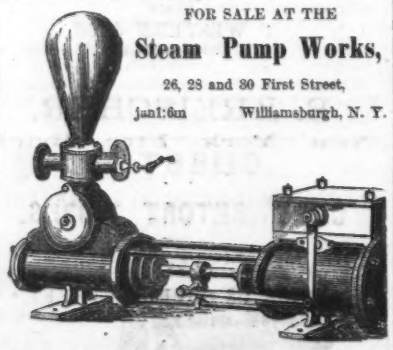

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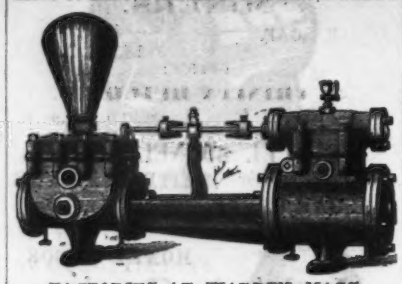

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ON THE MICROSCOPE AND ITS REVELATIONS.
FRIDAY, Dec. 4.—Prof. Alexander, College of New Jersey, Princeton;
ON THE TELESCOPE.
FRIDAY, Dec. 11.—Prof. Guyot, College of New Jersey, Princeton;
ON THE BAROMETER.
WEDNESDAY, Dec. 16.—Prof. Silliman, Yale College, New Haven, Conn.;
ON THE PHILOSOPHY OF THE TEA KETTLE.
WEDNESDAY, Dec. 23.—President Dawson of McGill College, Montreal;
ON THE PRIMEVAL FLORA.
WEDNESDAY, Dec. 30.—Mr. James Hall, State Geologist, Albany;
ON THE EVOLUTION OF THE NORTH AMERICAN CONTINENT.
WEDNESDAY, Jan. 6, 1869.—Prof. Horsford, Cambridge, Mass.;
ON THE PHILOSOPHY OF THE OVEN.
WEDNESDAY, Jan. 13.—Dr. T. Sterry Hunt, Montreal, Canada;
ON PRIMEVAL CHEMISTRY.
FRIDAY, Jan. 22.—Prof. Doremus, College of the City of New York;
ON THE PHOTOMETER.
WEDNESDAY, Jan. 27.—Mr. Waterhouse Hawkins of London;
ON COMPARATIVE ZOOLOGY.
WEDNESDAY, Feb. 3.—Prof. Cooke, Harvard College, Mass.;
ON THE SPECTROSCOPE.
WEDNESDAY, Feb. 10.—Wm. J. McAlpine, Pres. Am. Soc. of C. E.;
ON MODERN ENGINEERING.

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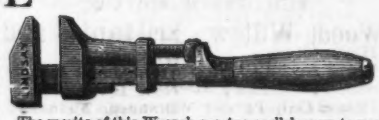

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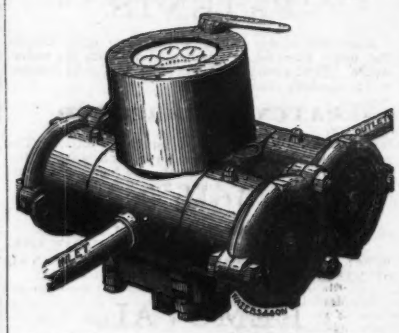

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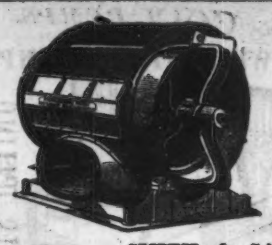

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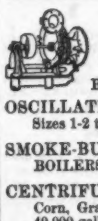

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" One current of, and how to adopt separate currents (plan)
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" How to find the weight of
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" (After, or choke damp) composition of
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" Choke damp and carbonic acid, not one and the same in quality
" The effect produced on people by inhaling such
" The quantity required for an explosive mixture
" The elasticity of
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" The nature and quality of
" Why some mines generate and produce more than others
" Why some mines generate a mixture of
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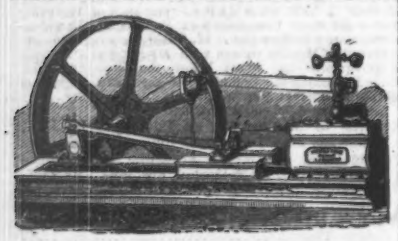

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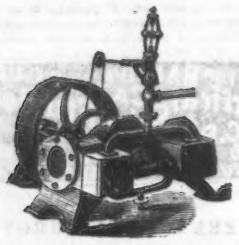

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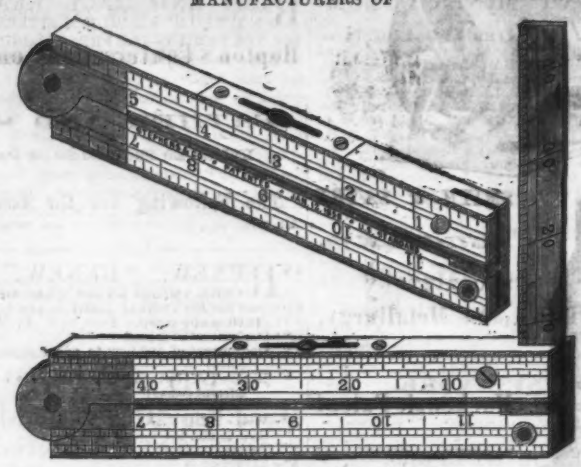

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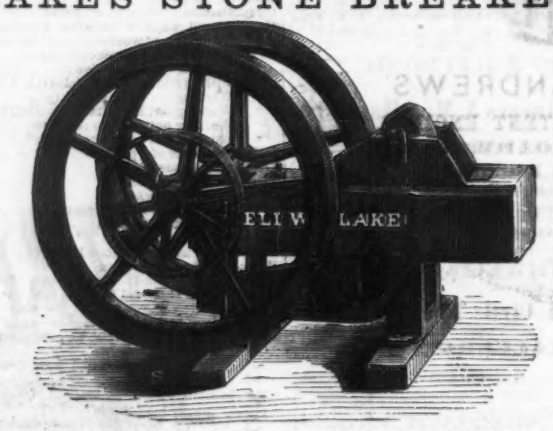

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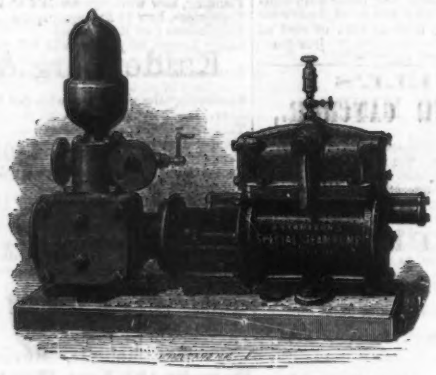

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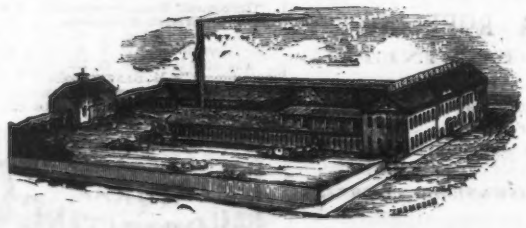

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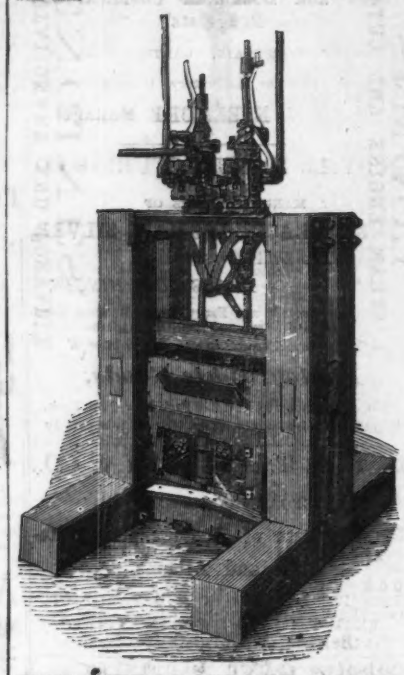

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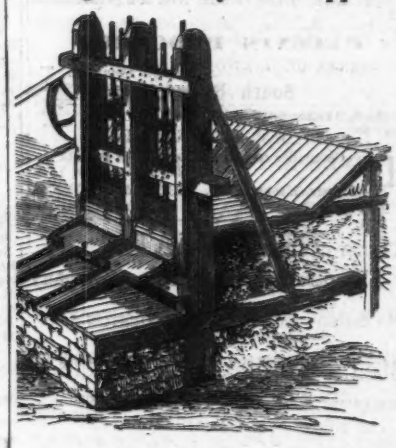

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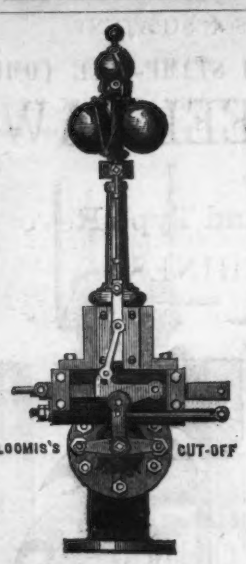

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